



Chapter 10

The Year in Review and the Years Ahead

Economic growth increased again during 2018. After growing by about 2.0 percent during the four quarters of both 2015 and 2016, economic growth increased to 2.5 percent during 2017, and then picked up again—to 3.2 percent, at a compound annual rate—during the first three quarters of 2018, compared with the Administration’s forecast of 3.1 percent for the four quarters of 2018. On the demand side, much of the faster growth during these past two years was accounted for by investment and (to a lesser extent) by net exports offsetting slightly slower growth in residential investment and State and local government. Consumer spending growth edged slightly lower, from 2.7 percent in 2017 to 2.6 percent through 2018:Q3 at an annual rate. On the supply side, the rise in growth (during the first three quarters of 2018, relative to average growth after the 2007:Q4 business cycle peak) was accounted for by slightly higher growth in real output per hour, a stabilization of the labor force participation rate after a protracted period of decline, a lengthening of the workweek, and further increases in the employment share of the labor force, more than offsetting a decline in population growth. By the fourth quarter, the unemployment rate had fallen to 3.8 percent, the lowest quarterly rate since 1969. Nominal average hourly earnings increased by 3.4 percent during the 12 months of 2018, up from a 2.7 percent year-earlier rate and 2.1 percent average annual rate during the business cycle expansion from 2009:Q3 through 2016:Q4.

The 3.2 percent annualized growth in real gross domestic product (GDP) during the first three quarters of 2018 exceeded consensus expectations for the second year in a row. Blue Chip Economic Indicators’ December 2017 survey forecasted

growth of only 2.4 percent during the four quarters of 2018. The unemployment rate fell another –0.3 percentage point, to 3.8 percent (fourth quarter to fourth quarter). Over the course of 2018, the economy added 2.7 million nonfarm jobs, averaging 223,000 per month, with sizable job gains in most of the major sectors. It is unusual for jobs to increase at this rate nine years into an economic expansion. Labor productivity growth in the nonfarm business sector rose from a pre-Tax Cuts and Jobs Act (TCJA) expansion average of 1.1 percent to 1.8 percent at an annual rate during the first three quarters of 2018. In addition, although the labor force participation rate has risen slightly overall, and among prime-age workers specifically, long-term trends in overall participation due to the aging Baby Boom generation will require fresh policy actions to offset (such as those discussed in chapter 3 of this *Report*).

In this chapter, we also report on the Administration’s progress in 2018 toward achieving the five pillars of U.S. trade policy, as enumerated by the Office of the U.S. Trade Representative (USTR 2018a) in its 2018 *Annual Report*: supporting our national security, strengthening the U.S. economy, negotiating better trade deals, aggressively enforcing U.S. trade laws, and reforming the multilateral trading system.

Acknowledging both upside and downside risks, the Trump Administration’s policy-inclusive forecast (which assumes full implementation of the Administration’s economic agenda) is for real GDP to grow at an average annual rate of 3.0 percent during the 11 years between 2018 and 2029. As noted in the 2018 *Economic Report of the President* and in chapter 1 of this *Report*, we expect growth to moderate slightly after 2020, as the capital-to-output ratio approaches its new, post-TCJA steady state, and as the effects of the TCJA’s personal income tax provisions on the rate of growth dissipate—leaving a permanent, positive, level effect. This moderation will be partially offset, however, by the supply-side effects of the assumed enactment of new deregulatory actions and infrastructure investment. With growth moderating in the latter half of the budget window, from 3.2 percent in 2019 to 2.8 percent in 2029, the

Administration expects unemployment to rise to a natural rate of 4.2 percent, which will also maintain price stability.

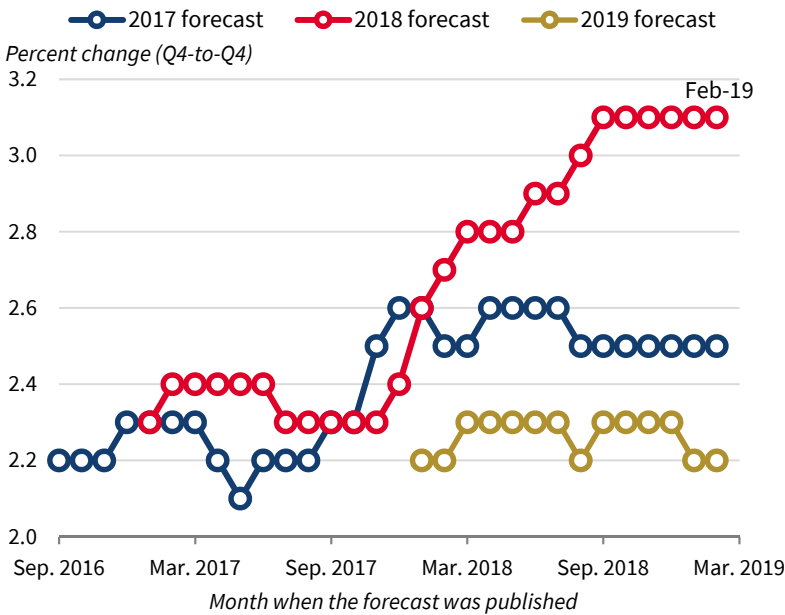
Growth during both 2017 and 2018 surpassed expectations, as shown in figure 10-1. In January 2017, the Blue Chip consensus forecast for fourth quarter-to-fourth quarter growth of real GDP was 2.3 percent in both 2017 and 2018, while the Congressional Budget Office (CBO) projected growth of 2.3 and 1.9 percent, respectively. Actual real GDP growth during 2017 and annualized growth during the first three quarters of 2018 was 2.5 and 3.2 percent, respectively.

Consider the expenditure-side components of real GDP in turn: During the first three quarters of 2018, real consumer spending grew at a 2.6 percent annual rate, similar to the 2.7 percent pace during 2017. Real disposable personal income grew at a 2.8 percent annual rate, and the saving rate was roughly flat from 2017:Q1 to 2018:Q3. Business fixed investment grew 7.5 percent at an annual rate through 2018:Q3, up from 6.3 percent during 2017, and up from only 1.8 percent during 2016. Private nonresidential fixed investment contributed almost one-third of GDP growth, rising from a pre-TCJA expansion average of 0.6 percentage point to 1.0 percentage point. Residential investment fell 2.8 percent at an annual rate during the first three quarters of 2018, retracing some of the year-earlier gain. Inventory investment added 0.5 percentage point to average growth during the first three quarters of 2018, and accounted for much of the quarterly fluctuations in GDP, with a large 2018:Q3 contribution, which was partially offset by negative contributions in 2018:Q2. Government purchases added 0.4 percentage point to overall GDP growth during the first three quarters of 2018, with nearly half of this accounted for by State and local purchases and half by defense purchases. Exports contributed 0.3 percentage point to real GDP growth during the first three quarters of 2018, a notable increase from the average contribution of -0.1 percentage point in the years 2015–16.

Over the course of 2018, the U.S. economy added 2.7 million nonfarm jobs, averaging 223,000 per month, up from 179,000 per month during 2017. By 2018:Q4, the unemployment rate had fallen to 3.8 percent, the lowest quarterly rate since 1969, and down 0.3 percentage point since 2017:Q4. The unemployment rate for African Americans was down 1.3 percentage points during the 24 months through December 2018, to 6.6 percent. The 2018 yearly average unemployment rate of 6.5 percent for African Americans was the lowest rate recorded in a series that began in 1972.

The annual average labor force participation rate has ticked up under President Trump to 62.9 percent from 62.8 percent in 2016—an improvement in contrast to a general pattern of decline since 2007. The influences responsible

Figure 10-1. Evolution of Blue Chip Consensus Forecasts for Real GDP Growth during the Four Quarters of 2017, 2018, and 2019



Source: Blue Chip Economic Indicators.

for the past decline in the participation rate include the retirement of Baby Boom generation cohorts, an atypically slow recovery from the 2007–9 recession, and government policies that discouraged participation (see chapter 3 of this *Report* and Mulligan 2012). The stabilization of the participation rate during the years 2016–18, with a modest uptick toward the end of 2018, reflects a tightening labor market that is bringing people off the sidelines and offsets the continued transition into retirement of peak Baby Boom cohorts. Administration policies to promote labor market reskilling, as well as marginal personal income tax rate reductions under the TCJA, have likely complemented the tightening labor market to promote higher participation.

Most of the key inflation measures increased slightly during 2018, from below the Federal Reserve’s target of 2.0 percent—as measured by the Personal Consumption Expenditures (PCE) Price Index—to rates roughly in line with this target. The PCE and core PCE (excluding volatile food and energy) price indices rose by 1.8 and 1.9 percent over the 12 months ending in November 2018, up from 1.8 and 1.6 percent during 2017, respectively. As measured instead by the core Consumer Price Index (CPI), inflation increased to 2.2 percent during the 12 months of 2018 from a year-earlier rate of 1.8 percent. Market-based measures of inflation expectations show that inflation is expected to remain at roughly its current pace.

The small uptick in inflation during the past year is notable because it was accompanied by low and declining unemployment. Factors that have kept inflation low include low import prices and confidence in the Federal Reserve's ability to hit its target. Real average hourly earnings of nonfarm private sector employees rose by 1.4 percent during the 12 months through December, deflating by the CPI inflation measure, as nominal wage growth continued to exceed the subdued pace of price inflation, which was more than double the 0.6 percent real wage gain during 2016 and 2017. When measuring inflation using the PCE Price Index, real average hourly earnings rose slightly faster (by 1.5 percent) during the 12 months through November 2018.

Challenges in the labor market remain for 2019 and the longer term, including increased opioid dependence, the improving but still low rate of labor productivity and real wage growth, and downward pressure on the labor force participation rate from demographic shifts (see chapter 3). However, these challenges may be confronted with good policymaking regarding tax reform, work requirements, expanding labor market opportunities, and deregulation. Capital deepening, a key driver of labor productivity, has improved during the past year in response to the last year's tax bill, the TCJA. Meanwhile, though demographics are a principal determinant of long-run trends in labor force participation, much can be done to support rising participation for specific age groups. Policy has reduced participation in the past, and many of these changes are reversible. For example, as demonstrated in chapters 3 and 9 of this *Report*, policies designed to mitigate the demand-side effects of rising unemployment during the Great Recession and other structural factors—such as geographic immobility—have had persistently negative effects on the labor supply of both prime-age and young adults. Recent policy proposals, such as proposed work requirements for some public benefits, can help reverse these negative effects.

Assuming full implementation of the President's economic agenda, the Administration projects real GDP to grow by 3.2 percent during the four quarters of 2019, and by 2.8 percent in the long term. After a further near-term decline, the long-term unemployment rate is projected to gradually rise to a natural rate of 4.2 percent, while inflation, as measured by the chained price index for GDP, is expected to remain stable at its current rate of about 2.0 percent. Yields on 10-year Treasury notes are expected to rise from the projected yield of 2.9 percent in 2018 to historically more normal levels of 3.7 or 3.8 percent during the decade of the 2020s.

Output

Real GDP grew by 3.2 percent at a compound annual rate through the first three quarters of 2018, a pace that, if sustained through the end of the year, would mark the fastest four-quarter growth in any calendar year since 2004. Real

gross domestic output—an average of GDP and gross domestic income—grew at a similar 3.2 percent annual rate during the first three quarters of 2018, up from 2.4 percent during the four quarters of 2017. Most of the growth during the first three quarters of 2018 can be attributed to strong increases in consumer spending, business fixed investment, and government spending. These were somewhat offset by declines in residential investment and net exports.

Consumer Spending

Consumer spending was the major demand-side contributor to real GDP growth during 2018, not because it grew especially rapidly, but because it constitutes 69 percent of real GDP. Real consumer spending grew at roughly the same rate (2.6 percent, at an annual rate) as disposable income (2.8 percent), so the personal saving rate changed little (on net) from 2017:Q4 to 2018:Q3 (figure 10-2).

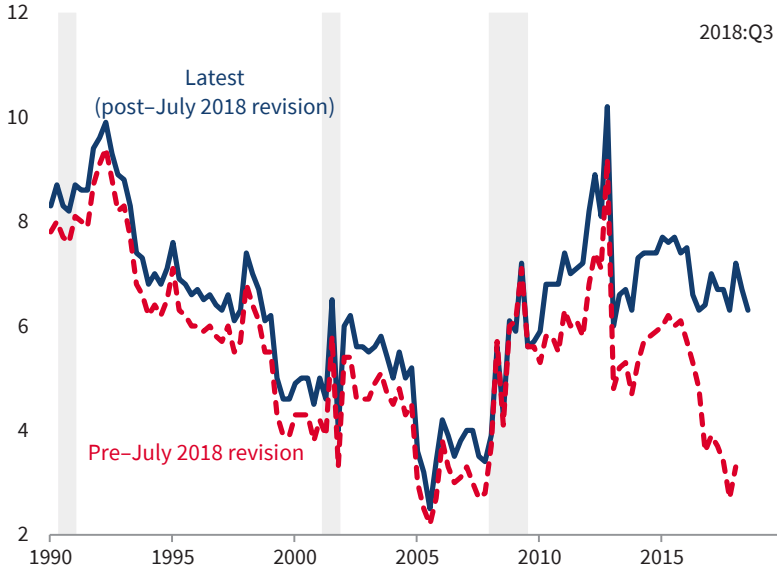
One noteworthy development in 2018 was the huge upward revision in the saving rate. In July 2018, the Commerce Department's revision of the National Income and Product Accounts showed that the previously released 2017 saving rate almost doubled, from 3.4 percent to 6.7 percent (also shown in figure 10-2). Small revisions extend back historically, but revisions of 0.5 percentage point or more affected data from 1976 forward, and upward saving rate revisions of about 1.50 percentage points affected data from 2012 to 2016. For the period 2007–17, large upward revisions to proprietors' income were “almost entirely attributable to revised estimates of the misreporting of nonfarm proprietors' income, based on IRS data, which exceed \$100 billion for 2012–14” (BEA 2018, 26). For 2017, the huge upward revision of 3.3 percentage points resulted from both proprietors' income and new administrative data for wages and salaries collected through the unemployment insurance tax system. The prerevision saving rate data might have been viewed as worrisome because it suggested that the saving rate was falling to such a low level that it constrained the growth of consumer spending. The large upward revision dispelled that view.

Real consumer spending grew at a pace similar to that of real income during 2018, so that the saving rate was little changed during the four quarters of the year. The real wages and salaries component of income tends to track real spending well, as was the case in 2017 and 2018. During the first three quarters of 2018, for example, real wage and salary income grew by 2.3 percent at a compound annual rate, while real consumer spending grew by 2.6 percent. In addition to income, consumer spending was supported by strong consumer sentiment, a declining ratio of debt service payments to disposable personal income through 2018:Q3, improving access to credit, and continued gains in wealth.

During the first three quarters of 2018, growth was strong for real household purchases of goods, which grew at a 3.0 percent annualized rate, while

Figure 10-2. Personal Saving Rate, 1990–2018

Percentage of disposable personal income



Source: Bureau of Economic Analysis.

Note: Data for the pre-July 2018 revision are through 2018:Q1. Shading denotes a recession.

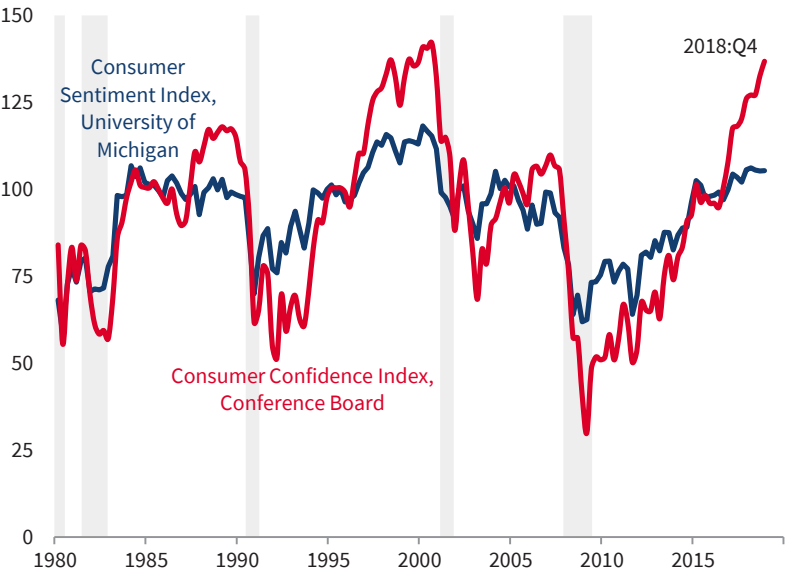
service purchases grew moderately, by 2.4 percent. Consumer sentiment increased in 2018 (figure 10-3). During 2018, the two major indices of consumer sentiment reached their highest quarterly averages since 2000. The Conference Board Index increased faster during 2018, partly because it includes a question on employment expectations, while the University of Michigan’s overall Consumer Sentiment Index does not.

Household wealth peaked at a value equivalent to 7.0 years of income in 2018:Q3, the highest household wealth-to-income ratio since records began in 1947. However, a nearly 15 percent drop in the stock market during 2018:Q4 lowers our end-of-year wealth-to-income ratio estimate below year-earlier levels. Despite a net decline during the past four quarters, the wealth-to-income ratio is predicted to remain high from a historical perspective (figure 10-4).

Consumer spending tends to move up and down in parallel with wealth, as seen in the positively correlated co-movement of wealth and consumption in figure 10-4. And so one might have expected the increases in the consumption rate during 2016 and 2017 to be in parallel with the rising wealth-to-income ratio. In contrast, the consumption rate remained roughly flat from 2016 through 2018:Q3. It could be argued, therefore, that the predicted 2018:Q4 level of wealth (despite the projected declines during that quarter) could have supported a higher level of consumer spending relative to income (or equivalently, a lower saving rate) than observed during 2018. Or viewed

Figure 10-3. Consumer Sentiment, 1980–2018

Index (1985 = 100)

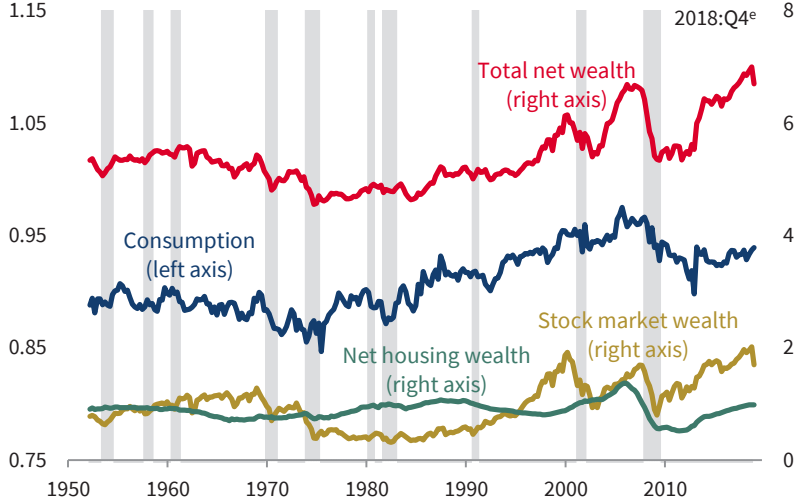


Sources: University of Michigan; Conference Board; CEA calculations.

Note: Shading denotes a recession.

Figure 10-4. Consumption and Wealth Relative to Disposable Personal Income (DPI), 1952–2018

Ratio to annual DPI



Sources: Federal Reserve; Bureau of Economic Analysis; CEA calculations.

Note: Shading denotes a recession. The CEA estimated the 2018:Q4 data from the latest daily or monthly data.

another way, the historically high level of the wealth-to-income ratio (seen in figure 10-4) can be expected to buffer whatever negative effects might ensue from the predicted 2018:Q4 decline in wealth, so that it would have only a small negative effect on consumer spending this year.

For a discussion of investment in 2018, see chapter 1 of this *Report*, “Evaluating the Effects of the Tax Cuts and Jobs Act.”

Government Purchases

Real government purchases—Federal, State, and local consumption, plus gross investment—contributed 0.4 percentage point to real GDP growth through the third quarter of 2018, up from 0.2 and 0.0 percentage point in 2016 and 2017, respectively (figure 10-5). Real Federal purchases increased by 3.3 percent through 2018:Q3 at an annual rate, up from 1.3 percent growth during 2017. Defense purchases—defense consumption and gross investment—which grew by 4.6 percent during the same period, accounted for nearly all of the faster growth of real Federal purchases. The growth of defense purchases partially offset several years of declining real defense capital stock. State and local government purchases—consumption plus gross investment—contributed 0.2 percentage point to real GDP growth during the first three quarters of 2018, growing 1.6 percent over this time frame, after falling 0.5 percent during 2017.

State and local purchases as a share of nominal GDP fell from their historical peak of 13.0 percent in 2009 to 10.8 percent in 2017 and 2018, as State and local governments curtailed spending in the face of budget pressures. Even so, State and local government purchases as a share of nominal GDP have exceeded the Federal share since 1984 (figure 10-5). State and local governments employ about 13 percent of nonfarm workers and added 105,000 jobs during 2018.

Net Exports

Real U.S. exports of goods and services rose by 2.5 percent at an annual rate during the first three quarters of 2018, a strong growth rate but down from 4.7 percent in 2017—the largest four-quarter rate of growth since 2013. Exports contributed 0.3 percentage point at an annual rate to real GDP growth during the three quarters through 2018:Q3 (figure 10-6). The pickup of U.S. export growth during 2017 and the slower growth in 2018 reflected the pattern of growth among our trading partners, with relatively synchronized global growth in 2017 succeeded by evident decoupling in 2018, when U.S. growth increased while foreign growth slowed. Meanwhile, real U.S. imports increased by 3.8 percent at an annual rate during the first three quarters of 2018, faster than exports.

Figure 10-5. Government Purchases as a Share of Nominal GDP, 1948–2018

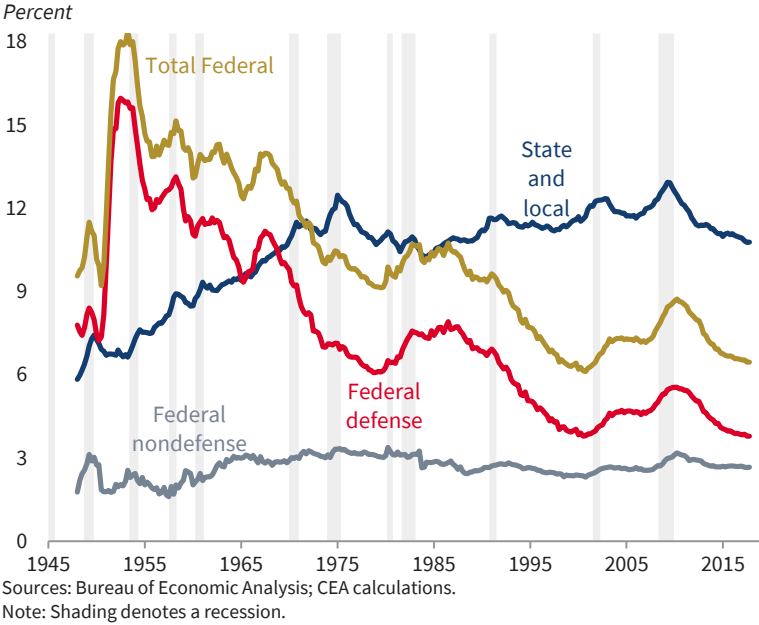
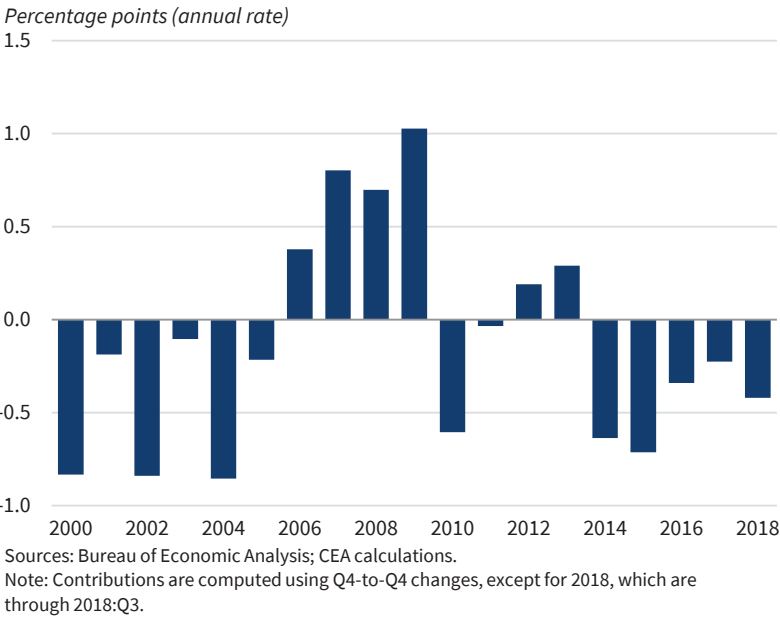


Figure 10-6. Contribution of Net Exports to U.S. Real GDP Growth, 2000–2018



The Trade Year in Review

This section reviews trade activities in 2018. First, it looks at U.S. trade policy during the year. Second, it discusses two global safeguards imposed to temporarily protect domestic industries from imports. Third, it examines major trade actions aimed at reducing imports of steel and aluminum to address the national security issues resulting from such imports. Fourth, it considers the year's largest trade action: the imposition of import tariffs on \$250 billion in goods from China. Fifth, it explains how the United States successfully updated its trade agreement with South Korea and modernized its agreement with Mexico and Canada. And sixth, it presents a case study of how the U.S. decided to withdraw from the Universal Postal Union, reflecting the Administration's vision of how to best advance our Nation's interests.

U.S. Trade Policy in 2018

After decades of underperforming trade deals that put American families and businesses at a disadvantage, President Trump has been clear that he intends to pursue free, fair, and reciprocal trade for the United States and its workers. In 2018, the Trump Administration made strides toward realizing his vision for the future of American and global trading relations—a vision in which he stands up for American workers and actively responds to economic competitors that do not adhere to international trading norms.

The Administration's trade policy rests on five pillars, as enumerated by the Office of the U.S. Trade Representative (USTR 2018a) in its 2018 *Annual Report*: supporting our national security, strengthening the U.S. economy, negotiating better trade deals, aggressively enforcing U.S. trade laws, and reforming the multilateral trading system.

Table 10-1 provides a timeline of major events for the primary trade policy actions in 2018 that are discussed in this section. In keeping with the pillars laid out by USTR, it is worth noting that an economic lens is not well suited to analyze all active trade policy issues. For example, reform of the World Trade Organization is a priority for the United States. However, the issues there center on transparency, the vitality of the negotiating and monitoring functions, judicial overreach, enforcement, publication, compliance, the willingness of countries to engage in negotiations, and issues of legal interpretation. The CEA (2018a) has catalogued some of these structural topics; they are not raised again here.

The changes in the global trading system during the past generation have triggered a reconsideration of policies in the United States and around the world. As a measure of the growing importance of trade, the value of imports plus exports as a share of U.S. GDP tripled from 1960 to 2017. Economic forces have changed historical production patterns and factor allocations. The CEA (2018a) presents a comprehensive review of the benefits of increased trade and

the costs that arise as a result, particularly the distributional consequences. These effects have triggered a political response that has fueled resolve to address the underlying shifts. Fortunately, addressing the issues and pressures facing the global trading system could deliver large and lasting economic net benefits.

The Organization for Economic Cooperation and Development (OECD 2018) has highlighted the gains from reduced global barriers to trade. Reducing trade barriers in each sector to the lowest levels currently observed in any economy belonging to the Group of Twenty would expand global trade by 3 percent. President Trump's goal of zero tariffs, zero nontariff barriers, and zero subsidies promises to deliver these and greater gains to American consumers and workers, and to other countries around the world.

In 2018, the Trump Administration took three principal tariff actions that are designed to protect American workers, firms, and national security. (These three actions are explained in detail in the next subsections.) In addition to working with our trading partners to eliminate unfair trading practices, the President elected to use tariffs to protect U.S. workers, businesses, and national security. The tariffs implemented in 2018 raised the U.S. average applied tariff by 1.1 percentage points, from 1.5 percent in January 2018 to 2.6 percent in November 2018.

Tariffs provide benefits as well as costs. The Federal government benefited from \$14.4 billion in revenue collected in 2018 from newly imposed tariffs. Revenue was historically a major impetus for tariff policy, though it has not been one for more than a century (Irwin 2017). In addition to this revenue, domestic producers also stand to benefit from price increases supported by tariff protections. Offsetting these benefits are the costs paid by consumers in the form of higher prices and reduced consumption. Foreign exporters also bear some of tariffs' economic incidence, although the extent varies across products. The foreign incidence is smallest for substitutable products such as commodities.

Concurrent with higher tariffs, the United States has successfully updated its trade agreements with key trade partners in record time, signing a revised U.S.–South Korea Free Trade Agreement in September and a new United States–Mexico–Canada Agreement in November. These agreements include new, enforceable rules that promote free, fair, and reciprocal trade. The many dimensions that modern trade agreements address make the quick timetable of these agreements all the more impressive. The expected long-term gains are substantial for Americans from new trade patterns that are not bedeviled by current problems like weak intellectual property laws and enforcement, losses in manufacturing capacity, and barriers to expanded exports. In addition, the USTR has notified Congress of its intent to enter into negotiations with the European Union and Japan. And the USTR has also notified Congress that it

intends to begin negotiations with the United Kingdom as soon as it is willing to do so after Brexit resolves issues surrounding future trading relationships.

In the remainder of this section, the United States' 2018 trade policy actions are introduced sequentially. First, its three tariff actions are discussed. Understanding the differences between these trade actions and how they interacted with one another is key to understanding trade policy in 2018 and for years to come as the Administration's agenda progresses.

Section 201: Solar Cells and Large Residential Washing Machines

The first major actions in 2018 were two global safeguards imposed to temporarily protect domestic industries from imports. These actions proceeded contemporaneously at the request of U.S. firms that petitioned for relief from import competition in 2017, with the result that a combination of tariffs and quotas was imposed in late January. Global safeguard investigations are conducted by the U.S. International Trade Commission (USITC) under several different legal authorities. The 2018 safeguards invoked Section 201 of the Trade Act of 1974—a provision that had not been used since 2001, when the USITC conducted an investigation into imports of steel products that resulted in the imposition of tariff remedies. In both the solar cells and large residential washing machine cases, previous antidumping and countervailing duties had not been effective, in part because foreign producers shifted production to countries not subject to duties.

In 2017, the USITC completed two investigations. First, in November, an investigation determined that imported crystalline silicon photovoltaic (CSPV) cells and modules were a substantial cause of serious injury to the domestic industry.¹ Then, in December, an investigation determined that the imports of large residential washing machines were a substantial cause of serious injury to the domestic industry. The recommendations of the USITC commissioners were submitted to the President, who, under the statute, has substantial discretion in deciding on the ultimate remedy. On January 23, 2018, the President decided that tariff rate quotas (TRQs) would go into effect 15 days later, on February 7 (83 *FR* 3541, 83 *FR* 3553).² The TRQs apply to imports of these goods

¹ The investigation included assemblies of cells. A photovoltaic module consists of several photovoltaic cells that are connected together. Similarly, a photovoltaic module is an intermediate input used in the construction of a photovoltaic array, which is the complete power-generating unit. The CSPV is not the only solar technology, but is the most common, and most photovoltaic cells are manufactured using mono- or polycrystalline silicon. A recent report by the CEA (2018a) included a more detailed history of the solar safeguards dispute, investigation, and remedy.

² TRQs combine features of both a tariff and a quota. In a TRQ, a lower or zero tariff rate applies to imports of the good until some quota quantity is reached, after which point imports face a different, higher tariff rate.

from all countries and last for four years for CSPV cells and modules and three years for washers.³

The purpose of the global safeguard is to provide sufficient temporary relief from import competition in order to allow domestic firms to compete on a level playing field. During previous Administrations, tax incentives were offered to developers of renewable electric generation. But the Trump Administration has worked to eliminate these preferences to provide all sources of energy with the same advantage. Demand for CSPV products has historically been quite sensitive to these tax policies, which are now lower with the expiration of the production tax credit. As a result, after a substantial surge in late 2017, CSPV imports fell, and prices also fell, by 13 percent from January through December 2018. The petitioning firm, Suniva, is currently in bankruptcy, while the petition supporter, SolarWorld, was acquired in April 2018 by a competitor, SunPower.

After the Section 201 action, 31 percent fewer foreign washers were imported between February and November 2018 compared with the same period in 2017; industrial production of major electrical household appliances increased by 2 percent between December 2017 and 2018; and the CPI for washers and laundry equipment increased by 12 percent year-over-year in December. Industrial production also includes dryers, which are commonly purchased along with washers. The quota for washers was filled on October 22, meaning that the higher out-of-quota rate applied to imports until the quota reset in February 2019.

No official retaliatory tariffs were announced in response to these Section 201 actions, but China did launch a countervailing duty investigation of U.S. sorghum exports three days before both of the U.S. safeguards went into effect. This echoes events in September 2009, when China launched an investigation into U.S. exports of chicken the day after a U.S. safeguard tariff was applied to Chinese tires by the Obama Administration. In April 2018, China imposed anti-dumping and countervailing duties of 179 percent on imports of U.S. sorghum (valued at \$72 million in May 2017), but China removed and reimbursed these duties on May 18, 15 days after a U.S. trade delegation met in Beijing and after significant domestic criticism from Chinese sorghum purchasers. Nonetheless, while China purchased 79 percent of U.S. sorghum exports in the 2016 marketing year (from September 2016 through August 2017), U.S. sorghum exports to China in the 2017 marketing year were down 11 percent, and U.S. exporters directed shipments to other markets.

³ In 2018, CSPV module imports from all countries faced a tariff of 30 percent, while cell imports from all countries faced an in-quota rate of zero and an out-of-quota rate of 30 percent. Washing machines and parts faced in-quota rate of 20 percent, and an out-of-quota rate of 50 percent. In both cases, the restrictions gradually loosen over the duration of the remedy. The washer safeguard applied to all residential washers, not just the large residential washers with a capacity larger than 10 kilograms described in the original petition.

Section 232: Steel and Aluminum

The second major trade actions of 2018 were aimed at reducing imports of steel and aluminum in order to address the threatened impairment of the United States' national security caused by such imports. Although the investigations of primary aluminum and steel were separate actions, they followed similar and contemporaneous tracks, and both resulted in the application of tariffs beginning in March 2018. These actions were taken based on the President's authority under Section 232 of the Trade Expansion Act of 1962.

In April 2017, the Department of Commerce initiated investigations into whether imports of steel and primary aluminum threatened to impair U.S. national security. In January 2018, Commerce reported to the President that current levels of both steel and primary aluminum imports threaten to impair U.S. national security. In light of this finding, President Trump imposed import tariffs of 10 percent on a wide range of aluminum products and also a 25 percent tariff on steel and an array of steel products, which became effective March 23.

The March 23 tariffs did not apply to a number of countries—including major importers and exporters of steel and aluminum, like Canada and the members of the European Union—as the United States entertained country-specific alternative arrangements. In May 2018, the United States negotiated alternative means to address the threatened impairment to national security caused by imports of steel from Argentina, Brazil, and South Korea, including the imposition of quantitative restrictions on imports of steel from these countries. Argentina and Brazil were able to reach a similar agreement on quantitative restrictions for aluminum, though South Korea remained subject to the aluminum tariff. Australia reached an agreement to avoid both the tariff and quota on steel and aluminum. In total, the quotas represented 17 percent of U.S. steel and 3 percent of U.S. aluminum imports in 2017. Canada, Mexico, and the EU did not reach a similar agreement, and on June 1, a 25 and 10 percent tariff was imposed on steel and aluminum imports, respectively. The tariff on Japan went into effect March 23 at the same rates. Concurrently, the United States and South Korea agreed to an alternative means to address the threat to national security posed by steel imports from South Korea. As part of the Section 232 agreement, imports of steel from South Korea became subject to a quantitative restriction equivalent to 70 percent of U.S. steel imports from South Korea based on an annual average across 2015 and 2017.

The President also determined that the Section 232 actions should have an exclusion process to allow domestic firms to import specific products not available in the United States without paying a tariff. Other domestic producers are able to file objections to exclusion requests claiming that domestic supplies are indeed available. This mechanism provides a means for steel users

	2018											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Section 301	USTR initiates Section 301 investigation (Aug. 18, 2017)	USTR releases Section 301 Report (Mar. 22, 2018)	Tranche 1 on \$34 billion (July 6, 2018)	Tranche 2 on \$16 billion (Aug. 23, 2018)	Tranche 3 on \$200 billion (Sep. 24, 2018)		Retaliation 1 on \$34 billion (July 6, 2018)	Retaliation 2 on \$16 billion (Aug. 23, 2018)	Retaliation 3 on \$60 billion (Sep. 24, 2018)			President Trump announces agreement to delay increases of tariffs on Tranche 3 (Dec. 1, 2018)
FTAs	USTR informs Korea of intention to re-negotiate KORUS (July 12, 2017)	Re-negotiated KORUS agreement reached in principle (Mar. 28, 2018)							Re-negotiated KORUS agreement signed (Sep. 24, 2018)			
	President Trump informs Congress of intention to re-negotiate NAFTA (May 18, 2017)							U.S. reaches deal in principle with Mexico (Aug. 27, 2018)	U.S. reaches deal in principle with Canada (Sep. 30, 2018)		USMCA agreement signed (Nov. 30, 2018)	

Sources: Council of Economic Advisers using information from the White House, *Federal Register*, Office of the U.S. Trade Representative, U.S. Customs and Border Protection, U.S. Department of Commerce, and the World Trade Organization.

that cannot source steel or aluminum domestically to acquire inputs without paying tariffs.

Since the tariffs went into effect, imports have decreased while production has increased for steel and aluminum. Domestic primary aluminum production increased by 10 percent from March to December 2018, while employment in alumina and aluminum production rose by 100 jobs over the same period. From April to November 2018, aluminum imports were 15 percent lower than in the same period one year earlier (before the imposition of tariffs). U.S. Midwest aluminum prices fell 6.6 percent between when the tariff actions went in force (March 22) and December 31 2018. In the steel industry, production increased by 6 percent from March to December 2018, with iron and steel mills and ferroalloy production employment increasing by 6,200 over the same period. From April to November 2018, steel imports were 11 percent lower than in the same period one year earlier. From March to December 2018, the producer price index of iron and steel rose 7.5 percent.

In response to U.S. actions under Section 232, Canada, China, the EU, Mexico, Russia, and Turkey imposed retaliatory tariffs on a total of \$30 billion of U.S. 2017 exports.⁴ These retaliations were symmetric, insofar as they were import tariffs against U.S. exports, but they targeted a wide array of products beyond steel and aluminum. However, these retaliatory tariffs are being challenged by the United States at the World Trade Organization.

Section 301: China

The United States' largest trade action of 2018 was its imposition of import tariffs on \$250 billion worth of goods from China in three tranches (2017 import value). The tariffs follow a thorough process initiated by the Trump Administration in August 2017, when the USTR opened an investigation into Chinese policies and practices regarding technology and intellectual property under Section 301 of the Trade Act of 1974. The USTR (2018b) issued a report in March 2018 that detailed a variety of unfair Chinese policies and practices: (1) forced technology transfer from U.S. inventors and companies; (2) nonmarket-based terms for technology licenses; (3) Chinese state-directed and -facilitated acquisition of strategic U.S. assets; and (4) cyber-enabled intrusions into U.S. commercial networks to steal trade secrets for commercial gain.

Initial negotiations to address China's policies and practices failed to yield satisfactory outcomes, resulting in the United States imposing additional tariffs on \$50 billion worth of Chinese imports. The first Section 301 action applied an additional 25 percent ad valorem tariffs to Chinese imports worth \$34 billion in 2017 import value and took effect on July 6. A second tranche

⁴ In addition, India announced retaliatory tariffs, but has repeatedly delayed numerous implementation dates. Japan has notified the World Trade Organization of its intent to impose retaliatory tariffs but has not produced a list of goods or announced an expected date.

Box 10-1. Mitigating Trade Retaliation for Agricultural Producers

Under the leadership of President Trump, the U.S. Department of Agriculture (USDA) launched programs in 2018 to assist American farmers who were negatively affected in 2018 by retaliatory trade actions. The USDA made direct payments to affected farmers through the Market Facilitation Program, subject to payment limits and qualification criteria. Payments were available for producers of corn, cotton, dairy, fresh sweet cherries, hogs, shelled almonds, sorghum, soybeans, and wheat. Payments were based on production (except for hog farmers, who were compensated based on inventories) and how much the market for the particular commodity was estimated to be affected by retaliatory tariffs (USDA 2018a). The total authorization for this program was \$12 billion. As of February 19, 2019, \$7.7 billion has been distributed.

The USDA also provided assistance to farmers in the form of direct purchases of pork and beef, plus a variety of fruits, nuts, and vegetables that were negatively affected by retaliatory tariffs. The Food Purchase and Distribution Program will purchase and distribute \$1.2 billion worth of agricultural products (USDA 2018b). In addition, the USDA is providing \$200 million in trade promotion of agricultural products through the Agricultural Trade Promotion Program.

consisted of an additional 25 percent tariffs on a further \$16 billion in 2017 imports from China, taking effect on August 23.

Rather than changing its practices, China announced retaliatory tariffs on U.S. goods. The first and second tranches were met with symmetric responses against \$34 and \$16 billion worth of 2017 U.S. exports, respectively. Notably, the first tranche of retaliation included a 25 percent tariff on \$14 billion worth of U.S. soybean exports—the Chinese market represented over 57 percent of total U.S. soybean exports in 2017. Soybeans were the largest single product among dozens of agricultural exports targeted (see box 10-1).

The United States subsequently took supplemental tariff action under the authority of Section 301. A third tranche, of an additional 10 percent ad valorem tariffs applied to \$200 billion in 2017 import value, took effect on September 24.⁵ When the third tranche was announced, China was unable to retaliate symmetrically on a quantitative basis with import tariffs because China's imports from the U.S. were less than \$200 billion. However, China targeted \$53 billion in 2017 U.S. exports with a range of tariff rates up to 25 percent. After the three tranches of tariffs and retaliation, \$27 billion worth of 2017 U.S. exports to China remain unaffected, while \$262 billion worth of 2017 imports to the United States have not been targeted with Section 301 tariffs.

⁵ In December 2018, given ongoing negotiations with China, the Administration announced a delay in the implementation date for the increase in tariffs on the third tranche of goods, which was due to take place on January 1, 2019.

On December 1, 2018, China and the United States agreed to a 90-day period during which to negotiate structural changes with respect to forced technology transfer, intellectual property protection, and other issues. During this time, the United States agreed to delay increasing its tariffs on \$200 billion worth of Chinese imports from 10 to 25 percent, as had been scheduled to occur on January 1, 2019, until March 1, 2019.

Trade Agreements

In 2018, the United States successfully updated its trade agreement with South Korea and modernized its trade agreement with Mexico and Canada. The Administration also formally announced its intention to enter into negotiations for a trade agreement with the EU and Japan, and its wish to initiate negotiations with the United Kingdom as soon as it is ready to do so after it leaves the EU.

North America. Canada and Mexico are key U.S. trading partners—in the four quarters ending in 2018:Q3, a total of 24.9 percent of U.S. two-way trade in goods and services was with Canada or Mexico. Canada and Mexico are even more dependent on North American trade, with 71.9 and 65.1 percent of their total trade in the region, respectively. Since 1994, the North American Free Trade Agreement (NAFTA) has governed trading relationships in the region. Although some contend that NAFTA delivered broad net benefits to the U.S. economy (Caliendo and Parro 2015), the benefits were not evenly dispersed, and the costs of adjustment fell disproportionately on certain workers—such as those in the Upper Midwest with less educational attainment (Hakobyan and McLaren 2016). President Trump informed Congress in May 2017 of his intention to renegotiate NAFTA.

On November 30, 2018, President Trump signed the United States–Mexico–Canada Agreement (USMCA), thereby fulfilling his promise to the American people to renegotiate NAFTA. Once passed by Congress, USMCA will modernize the rules of trade and create a gold standard for modern provisions, such as digital trade, intellectual property rights, state-owned enterprises, and advanced customs procedures. In addition, USMCA will rebalance the terms of trade between all three countries to ensure that American workers and businesses across all sectors of the economy—manufacturing, services, and agriculture—receive benefits. The centerpiece of USMCA is a revision of the automotive rules of origin provisions that dictate when motor vehicles will be allowed to cross borders tariff free (see box 10-2).⁶

USMCA also makes substantial improvements in many other areas, including in labor and environmental protections, new disciplines on digital trade, and expanded dairy market access. With respect to labor, USMCA

⁶ For a recent study of the impact of rules of origin on trade within NAFTA, see Conconi et al. (2018). Rules of origin led to a substantial reduction in the amount of intermediate goods imported by Mexico from nonparty countries.

Box 10-2. USMCA and U.S. Auto Manufacturing

Under NAFTA, a vehicle must be assembled in North America, and at least 62.5 percent of the value of parts must originate in North America to qualify for tariff-free entry. An important loophole is that content can come in from outside the NAFTA members and can be combined with other inputs to become “deemed” North American content. After the U.S. auto assembly and parts sectors lost market share to NAFTA partners over the past 25 years, U.S. negotiators focused on using this provision to help bring back assembly and parts production in the United States.

USMCA increases the stringency of the requirement for regional value content from 62.5 to 75.0 percent and eliminates the practice of deeming. In addition, the content requirement is applied to core parts (engine, transmission, chassis, axle, and steering) that must also be satisfied. A new requirement pertains to the value of labor inputs. Depending on the type of vehicle, 40 or 45 percent of a vehicle’s inputs must be made by workers paid at least an average of \$16 per hour. These new provisions are designed to ensure that the highest-valued parts are made in North America, and will protect U.S. workers from lower-wage competition.

commits Mexico to adopt legislation recognizing the right of workers to engage in collective bargaining; and unlike NAFTA, the provisions in both labor and environment chapters are enforceable and subject to trade sanctions. USMCA increases Canadian import quotas for U.S. dairy products and also eliminates Canadian milk-pricing rules that limited opportunities for U.S. producers (see box 10-3).

South Korea. The U.S.–South Korea Free Trade Agreement (KORUS) is a bilateral agreement that entered into force in March 2012. At the President’s direction, the USTR informed South Korea of its intention to amend the KORUS Agreement on July 12, 2017. On March 28, the United States and South Korea reached an agreement in principle on KORUS amendments.

On September 24, the United States and South Korea signed a revised KORUS Agreement. Among other improvements, these revisions sought to achieve a level playing field for automobile trade. One issue of improvement was regulatory harmonization; the two countries have different safety standards, and thus an automobile deemed safe and legal to sell in one country may not be accepted in the other. The amended KORUS gave each automaker exporting from the United States an additional annual quota of 25,000 vehicles (doubling the total to 50,000 units a year) that are recognized as meeting South Korean safety standards as long as they meet U.S. standards. This improvement provides greater certainty for U.S.-based auto exporters to Korea to further increase sales and exports. The quota is also high enough to accommodate all vehicles exported to South Korea in 2017. The update also delayed

Box 10-3. USMCA and Canadian Dairy

Canada has a dairy supply management program that includes milk quotas and price supports for Canadian dairy farmers. A major achievement of USMCA is that it gives U.S. dairy producers an exclusive quota of 50,000 metric tons for fluid milk by the sixth year of the agreement, with a farmgate value of nearly \$20 million. Under the current system, the U.S. producers must compete with producers from many other countries. USMCA also includes greater access for value-added products like cheese, cream, powdered dairy products, and yogurt.

A second major breakthrough was Canada's agreement to eliminate milk price classes 6 and 7, which allowed marketing of surplus skimmed milk and milk protein products. Before the creation of class 7 in 2017, the value of annual U.S. exports to Canada of powdered milk components was over \$100 million. USMCA restores the Canadian export market for these powdered milk products and helps reduce low-priced Canadian surplus products from competing with U.S. dairy products in the global marketplace. The increased access for U.S. dairy products to the Canadian market plus the elimination of Canadian milk price classes 6 and 7 could increase the value of annual exports of U.S. dairy products to Canada by over \$328 million by year six of the agreement.

the date on which Korean light trucks would enter the U.S. duty free, pushing it back from 2021 to 2041. U.S. tariffs were to begin to fall starting in 2019, reaching duty free in 2021.

New agreements. Building on these successes, the Trump Administration is seeking more new trade agreements that will help American workers and U.S. commerce. On October 16, 2018, the Administration notified Congress of its intent to enter into free trade agreement negotiations with Japan and the EU, and with the U.K. These agreements could benefit the United States through reducing trade barriers in several areas, including agriculture, manufacturing, and services.

For example, in agriculture, Japan imposes a variable system of tariffs on pork imports, with rates as high as \$2.18 per pound; for beef, Japanese tariffs range from 38.5 to 50 percent. A number of international competitors, such as Australia, face much lower Japanese tariffs, so a free trade agreement with Japan could level the playing field for U.S. exporters. For the EU, there are a number of nontariff barriers that impede trade. Beyond agriculture, other tariffs and nontariff barriers stand in the way of U.S. goods and services exports to Japan. For the U.S., a number of nontariff barriers impede trade. Arita, Mitchell, and Beckman (2015) estimate that removing even a subset of agricultural barriers could increase U.S. exports to the EU by \$4.1 billion, compared with the 2011 baseline. Negotiations with the EU will also focus on making rules for

standards and product testing fairer and reciprocal. Finally, depending on the terms of Brexit, negotiations with the U.K. could also further open that market to American goods and services.

Case Study: The Universal Postal Union

The United States had been a member of the Universal Postal Union (UPU) since its founding in 1874; but in October 2018, the U.S. submitted notice of its intention to withdraw from the organization.⁷ This action reflects the Administration's priority of achieving a U.S. role in the international postal system consistent with the vision articulated in the August 23, 2018, Presidential Memorandum, a vision that would advance the interests of the U.S. alongside those of a number of other countries.

The historic nature of the set of reforms to the international postal system to be undertaken by the U.S. in 2019 reflects the historic nature of the changes in the economics of the international postal system that have occurred in recent years. These reforms are poised to occur through steps taken by the U.S. upon its exit from the UPU in October 2019. In the event that the UPU passes reforms that fully reflect the principles of the Presidential Memorandum before then, however, the U.S. could achieve its objectives without withdrawing. The U.S. therefore stands poised to adopt a remuneration system for items likely to contain goods that consist of nondiscriminatory "self-declared" rates that do not favor foreign mailers over domestic mailers or postal operators over non-postal operators. The only question is the compatibility of this achievement with U.S. membership in the UPU.

The United States' commitment to ensuring the provision of the benefits that the UPU originally intended to deliver at the time of its founding in 1874 has not changed. However, developments in the state of technology and the global economy have, in recent years, upended the economics of the international postal system. These changes have resulted in the UPU's "terminal dues" remuneration system imposing net costs on the national economies of certain member countries, including the United States. Although the costs imposed by the UPU's remuneration system for items likely to contain goods have in recent years increased for the U.S., the costs of exiting the UPU have decreased. As a result, the costs of U.S. membership in the UPU relative to its benefits has trended upward. In the spirit of the Nobel Prize-winning economist Milton Friedman's admonition against the evaluation of "policies and programs by their intentions rather than results," the Administration's approach to the U.S. role in the international postal system reflects its prioritization of the results that the international postal system delivers.

The emergence of substitutes for some of the services provided by the UPU has lowered the cost of U.S. withdrawal from the organization. Technological

⁷ This subsection was first published by the Council of Economic Advisers in January 2019.

change has created these substitutes. For example, the very first article of the Treaty of Bern that is the UPU's foundation underscores the goal of creating of "a single postal territory for the reciprocal exchange of correspondence between their post-offices." One plausible substitute for this function, email, is estimated to generate over \$8,000 in value per year for the median consumer and is available to anyone with access to the Internet at a typical marginal cost of zero (Brynjolfsson, Eggers, and Gannameneni 2018). A single substitute for the exchange of correspondence, then, appears to generate annual economic value for today's median consumer in excess of the entirety of real U.S. GDP per capita in 1874 (Bolt et al. 2018). Analysis of the international postal sector corroborates a direct link between global decline in volumes of letters since 1990 and the rise of technology like email (Copenhagen Economics 2017). Due to technology, then, the "exchange of correspondence" across international borders could occur for the roughly 90 percent of American adults who use the Internet without access to the UPU's single postal network (Anderson, Perrin, and Jiang 2018). This decreases the cost of a prospective exit from the UPU relative to a world where services like email could not substitute for international mail's role in facilitating the exchange of correspondence.

Although the costs of an exit from the UPU have decreased, the costs attributable to its remuneration system for items likely to contain goods have not. The UPU's existing "terminal dues" remuneration system determines the rates (i.e., prices) that one country's designated postal operator receives from a foreign postal operator for completing the delivery of mail originating in the foreign country. But these prices do not, under the status quo, need to have any relationship to either the cost that the designated postal operator incurs for completing the delivery or to the prices that it would charge a domestic mailer (i.e., customer of the postal service) for completing similar services. This creates conditions ripe for prices deviating from what they would be in the world of "unrestricted and undistorted competition in the provision of international postal services" envisioned in the August 23 Presidential Memorandum. Under the status quo, for instance, foreign mailers can pay prices that are a fraction of those offered to U.S. producers for delivering the same goods between the same two places by the U.S. Postal Service (Fountain and Malone 2018; Navarro 2018).

Instead, the scope of the economic costs that the terminal dues remuneration system could impose has increased due to the increase in volumes of goods transiting the international postal stream in recent years (Copenhagen Economics 2017). With the introduction of goods into the international postal stream, distortions in the pricing of international postal services created by the UPU's remuneration system can impose costs on producers and consumers that do not transact directly with any postal operator. These distortions in the pricing of international postal services for items likely to contain goods would be expected, like any set of price distortions, to lead to the types of

misallocations of the factors of production that lower standards of living in both developed and developing countries (e.g., Jones 2013; Restuccia and Rogerson 2017). If, by contrast, the international mail were to consist exclusively of letters (i.e., correspondence), these distortions of prices within the postal sector would affect only the postal operators and mailers of letters directly involved in postal transactions.

The rise of e-commerce allows these price distortions within the postal sector to impose burdens on actors throughout the global economy. According to one survey of e-commerce consumers in 31 countries, 84 percent of cross-border goods purchased online are of the type that would be subject to the terminal dues system if delivered by a designated postal operator (International Postal Corporation 2018). Any economics textbook would lead to the conclusion that these distortions in the price of shipping, in a competitive e-commerce market, induce additional distortions in underlying economic activity. First, these differences in consumer prices could influence and distort outcomes within the e-commerce sector, in which the sensitivity of consumer demand to price differences can exceed its sensitivity during bricks-and-mortar shopping (e.g., Ellison and Ellison 2009).

Second, any distortions in the prices of e-commerce goods could induce substitution toward online and away from offline retail vendors. New evidence that consumers have rates of substitution between online and offline vendors comparable to their rates of substitution between offline vendors underscores the plausibility of distortions accruing through this channel (Dolfen et al. 2018). And at least some offline establishments appear to generate positive local externalities or spillovers in terms of employment and output (e.g., Shoag and Veuger 2018), a condition that would both enlarge the magnitude of the aggregate costs that could be imposed by online/offline substitution and broaden the scope of who bears these costs to include workers and producers even in the nontradable sector. Complementing this retail-specific evidence, Barrot and others (2017) demonstrate that the differences in the local exposure to the general import competition generated by differences in shipping costs can affect local employment, local output, and even household finances.⁸

A paucity of data on the value of goods transiting the international postal system prevents estimating the aggregate macroeconomic burden imposed by the price distortions that result from the terminal dues system for items likely to contain goods. Nonetheless, in the case of the United States, the economics of the current U.S. role in the existing terminal dues system permits the inference that these distortions exist, and that the incidence of the burden they

⁸ However, the official trade data from the U.S. Census Bureau that inform the approach of Barrot et al. (2017) would not capture information about any goods that enter the U.S. through the international postal system. Barrot et al. (2018) detail the methodology for constructing the data used by Barrot et al. (2017), including the role of official trade statistics from the U.S. Census Bureau.

impose could fall on a variety of actors in the tradable and even nontradable sectors. Given the upward trend over time in the share of e-commerce items in the international postal system, in the absence of a change to the remuneration system, these economic costs of the distortions it imposes would only increase (Copenhagen Economics 2017).

This Administration's approach to the reform of the terminal dues system, though consistent with the spirit of U.S. concerns about the UPU's relationship to "marketplace competition in international mail" expressed as early as the Reagan Administration, reflects the novelty of these developments in the international postal sector's role in economic activity (Reagan 1986). The Administration's attempts at terminal dues reform in 2018 amounted to a strategy of voice in the canonical "exit, voice, or loyalty" economics framework articulated by Hirschman (1970) for rational approaches for the redress of grievances from within an organization. But sufficient progress toward the realization of the vision laid out in the Presidential Memorandum has yet to materialize, and, per Hirschman (1970), voice and exit can be substitutes as well as complements. If negotiations continue to fail to yield sufficient progress, the U.S. stands poised to continue on its path toward an exit from the UPU rather than continue its strategy of voice from within.

The vision articulated in the August 23 Presidential Memorandum looks toward the international postal system's future rather than its past. In 1874, the UPU's founders spoke of an international organization that would facilitate correspondence around the world. But since 1990, the volume of letters transiting the international postal system has trended downward, while the volume of items containing goods has trended upward (Copenhagen Economics 2017). Developing countries, in particular, seem to substitute electronic correspondence for letters (Copenhagen Economics 2017).

Given these changes in the international postal stream and its underlying economics, realizing the vision of "undistorted and unrestricted competition" articulated in the Presidential Memorandum would deliver benefits to both developing and developed countries, a reality reflected in the unanimous endorsement of the concerns voiced by the U.S. by the 28 members of the Postal Union of the Americas, Spain, and Portugal (2018). Other countries, including China and the Netherlands, seem to favor the UPU, embracing a remuneration system for items likely to contain goods that dates to an era when the international mail comprised many fewer goods and many more letters. To minimize the distortions created by postal remuneration policy given the underlying economics of the postal sector, the U.S. intends to adopt a system of self-declared and nondiscriminatory rates of remuneration for items likely to contain goods. The U.S. would welcome the opportunity to realize this forward-looking vision for its role in the international postal system as a member of the international postal union that it helped to found.

Policy Developments

Principal developments in the realm of economic policy pertain to fiscal policy and monetary matters. This section considers each in turn, with regulatory policy addressed in chapters 2, 5, and 6 of this *Report*, on, respectively, deregulation, energy, and banking.

Fiscal Policy

The most important fiscal policy actions during fiscal year 2018 were the Tax Cuts and Jobs Act (signed on December 22, 2017) and the Bipartisan Budget Act of 2018 (BBA; signed on February 9, 2018). The tax cut, together with the relaxing of the budget caps from the Budget Control Act of 2011, resulted in an increase in the Federal deficit in 2018. For a discussion of the TCJA, see chapter 1 of this *Report*.

For nearly the first six months of the fiscal year (October 1, 2017–March 23, 2018), Congress funded the Federal government through a string of five short-term continuing resolutions (CRs), funding the various budget accounts at the level of the preceding fiscal year. The last of these CRs, on February 9, 2018, was accompanied by the BBA. This final CR provided funding through March 23, 2018, when Congress passed the Consolidated Appropriations Act of 2018, which settled the remaining budget issues for 2018.

The legislation that enacted the first CR of the 2018 fiscal year also suspended the debt ceiling from October 1 through December 8 (when the limit was increased and reset at the debt level on that day), after which the Treasury resorted to extraordinary measures to keep the government functioning. On February 9, as part of the BBA, the debt limit was lifted again for the period through March 1, 2019.

The Bipartisan Budget Act of 2018, which was signed into law by President Trump on February 9, 2018, raised the statutory discretionary spending limits imposed by the Budget Control Act of 2011 (BCA) for two years at the beginning of the budget window, offsetting this by extending the mandatory budget sequester by two years later in the budget window (from 2025 to 2027). For fiscal year (FY) 2018, the BBA increased the defense limit by \$80 billion (to \$629 billion) and the nondefense limit by \$63 billion (to \$579 billion). For FY 2019, it increased the defense limit by \$85 billion (to \$647 billion) and the nondefense limit by \$68 billion (to \$597 billion). The national defense discretionary spending budgets for FY 2018 and FY 2019 also include \$71 billion and \$69 billion, respectively, in supplemental funding for Overseas Contingency Operations. The budget caps do not apply to spending designated for these operations or emergency purposes. The BBA also:

1. Included a continuing resolution to fund the government through March 23, 2018, because most appropriations to government agencies and programs were set to expire February 8, 2018.

2. Suspended the debt ceiling until March 1, 2019.
3. Granted \$90 billion in disaster relief funding for areas affected by hurricanes and wildfires.

The BBA is the third in a series of discretionary spending cap increases made to the BCA, including the Bipartisan Budget Act of 2013 and the Bipartisan Budget Act of 2015. The BCA, the Federal statute that the BBA amended, imposed annual statutory discretionary limits on both military and nondefense spending. It also required annual reductions to the initial discretionary spending limits and created automatic mandatory spending reductions (known as “sequestration”), which would be triggered by the absence of a deficit reduction agreement. In the wake of the BBA, these sequester rules are scheduled to be reinstated in FY 2020.

On October 1, 2018, the beginning of FY 2019, the President signed spending bills for the Departments of Defense, Labor, Education, and Health and Human Services, while the rest of the government was funded through more continuing resolutions through December 21, 2018. When the CR was not renewed, a shutdown of these unfunded Federal departments and agencies began on December 22, 2018, and continued through January 25, 2019, when Congress and the President agreed to another three-week continuing resolution.

During the shutdown’s five weeks, the CBO (2019) estimated that an average of roughly 300,000 nonessential Federal employees were furloughed, while essential employees worked—temporarily—without pay. Although legislation to eventually pay the furloughed Federal workers was passed and signed, those paychecks were not delivered until the shutdown was over. The cost to the Federal government for work that was paid for but not performed was about \$94 million per day of the shutdown. The National Income and Product Accounts treat work that is paid for but not performed as a component of nominal GDP but not real GDP.

An unknown number of Federal contractors were also furloughed. After factoring in the work missed by Federal contractors, the CBO (2019) estimates that real GDP growth was reduced by, respectively, 0.2 and 0.4 percentage point at an annual rate in 2018:Q4 and 2019:Q1. A rebound in growth in 2019:Q2 returns the level of real GDP to its previous path, although much of the output lost during the shutdown will not be recovered. As a result of the partial government shutdown, real fourth-quarter over fourth-quarter GDP growth is expected to be slightly lower in 2018, and slightly higher in 2019, relative to the nonshutdown counterfactual.

Monetary Policy

Before the year began, the Federal Open Market Committee (FOMC) expected to continue gradually raising the Federal funds rate during 2018, with the

caveat that the precise path of rate hikes would depend on the economy's course, especially employment and inflation. In its December 2017 forecast, the median FOMC participant expected *three* 25-basis-point rate hikes during 2018, which would have elevated the Federal funds rate from the 1.25–1.50 percent range at the end of 2017 to the 2.00–2.25 range at the end of 2018 (FOMC 2017b). Against the backdrop of stronger growth and a lower unemployment rate than expected, the FOMC raised rates *four* times, to the 2.25–2.50 percent range. Along the way, the FOMC noted that the inflation rate, which began the year below its 2 percent target, had moved up; and by May 2018, the FOMC began noting that core and overall inflation had “moved close to 2 percent” (FOMC 2018a).

In its final meeting of 2018, the FOMC signaled that some further rate hikes would likely be appropriate to meet its objectives, with the median FOMC participant expecting the Federal funds rate to reach 2.9 percent (i.e., two further rate hikes) by the end of 2019 (FOMC 2018b).⁹

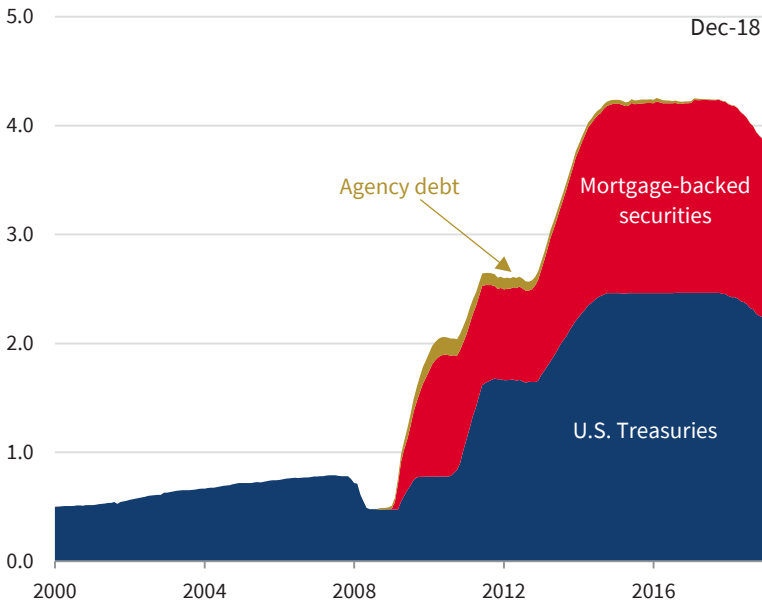
Another dimension of monetary policy during 2018 was the reduction of the Federal Reserve's holdings of Treasury and agency mortgage-backed securities. The Federal Reserve's total holdings of Treasury securities and agency mortgage-backed securities peaked at \$4.24 trillion during the period of quantitative easing (2009–14; see figure 10-7). By acquiring these assets (and taking them off the market), the Federal Reserve raised the price (and lowered interest rates) at these longer maturities. During the interval when these holdings were at or close to their peak (2014–17), it is estimated that they reduced the yields on 10-year Treasury securities by more than a full percentage point.

In June 2017, the FOMC announced a plan to reduce these holdings by allowing them to mature without replacement (FOMC 2017b). According to this plan, initially up to \$10 billion per month would be allowed to roll off the balance sheet, and this upper limit would increase—in steps of \$10 billion per month—every three months until it would reach \$30 billion per month for Treasury securities and \$20 billion per month for agency mortgage-backed securities. The plan was initiated in October 2017, with \$10 billion per month in securities allowed to mature without replacement. Following the June 2017 plan, this cap on maturation without replacement was increased by further increments of \$10 billion per month four times during 2018, until it reached its intended plateau of \$50 billion per month in October 2018. By December 2018, these holdings of Treasury and agency securities had fallen to \$3.88 trillion.

⁹ “The Committee judges that some further gradual increases in the target range for the Federal funds rate will be consistent with sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective over the medium term” (Federal Reserve 2016).

Figure 10-7. The Federal Reserve’s Total Assets, 2000–2018

Dollars (trillions)



Source: Federal Reserve Board.

With this pace of asset reduction operating in the background, the FOMC regards changes in the Federal funds rate as its active tool for adjusting the stance of monetary policy.¹⁰

Productivity

During the postwar period, from 1947:Q1 through 2007:Q4, real output per hour of all persons in the nonfarm business sector grew at a compound annual rate of 2.3 percent. During the current business cycle through 2017:Q4, real output per hour grew at a compound annual rate of just 1.2 percent, or just 1.1 percent since the start of the expansion in 2009:Q3. During the first three quarters of 2018, growth in real output per hour rose to 1.8 percent at a compound annual rate.

As discussed in chapters 1 and 8 of the 2018 *Economic Report of the President*, contributing to this slowdown in labor productivity growth was a declining contribution of capital intensity. Whereas, during the postwar period through 2007, the average contribution of capital intensity to labor productivity growth averaged 0.9 percentage point, during the current cycle through

¹⁰ From Jerome Powell’s press conference on December 19, 2018: “So, we thought carefully about this on how to normalize policy and came to the view that we would effectively have the balance sheet runoff on automatic pilot and use monetary policy, rate policy, to adjust to incoming data” (Federal Reserve 2018c).

2017:Q4, the contribution declined to just 0.5 percentage point (to 0.0 percentage point during the eight full years after the start of the recovery). In 2014 and 2015, the five-year average contribution of capital deepening to labor productivity growth actually turned negative for the first time in measured history. The 2018 *Economic Report* demonstrated that this was due in large part to an internationally uncompetitive corporate tax rate that deterred domestic capital formation. By lowering the cost of capital, the TCJA was intended to raise demand for capital services, and thus capital's contribution to labor productivity growth. The CEA therefore anticipates that as the economy approaches a higher target capital-to-output ratio in response to the TCJA, the contribution of capital deepening to labor productivity growth will increase.

Inflation

Most measures of wage and price inflation increased during 2018, with the increase from a too-low level to ones roughly compatible with the Federal Reserve's target of 2 percent inflation for the PCE Chain-Type Price Index. (For a discussion of wage inflation, see chapter 3 of this *Report* and CEA 2018b.)

The PCE Price Index increased by 1.8 percent during the 12 months through November 2018 (as shown in figure 10-8). This growth rate was slightly elevated by a 3.9 percent increase in energy prices. Core PCE inflation—which removes volatile components like food and energy prices—was 1.9 percent during the 12 months through November 2018, up from 1.6 percent during 2017. Therefore, relative to the Federal Reserve's target, inflation has increased from a too-low pace to a pace roughly in line with that target. A market-based measure of inflation expectations (the expected five-year CPI inflation rate five years from now) shows that inflation is expected to remain near its current pace of 2.2 percent.

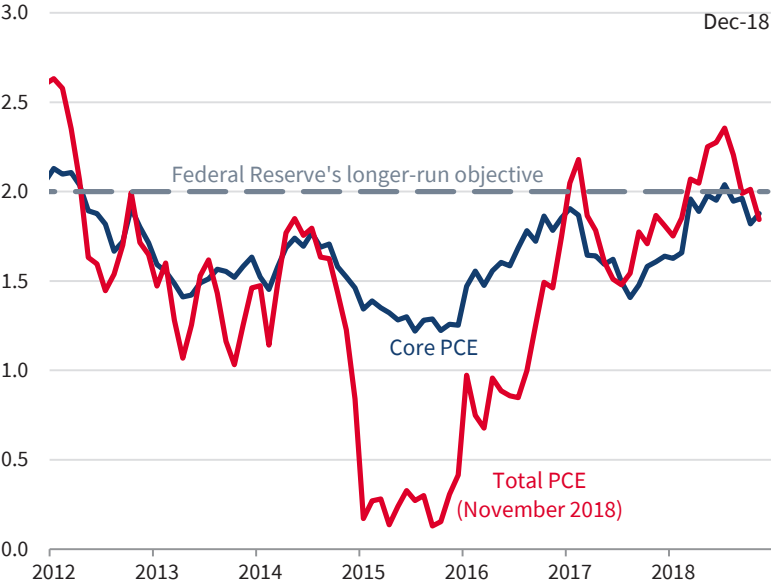
The moderate rate of consumer price inflation during 2018 is close to year-earlier expectations. For example, the December 2017 Blue Chip consensus forecast for CPI inflation was 2.1 percent over the four quarters of 2018 (virtually matching the 2.0 percent realized value at a compound annual rate through 2018:Q3). Though the unemployment rate averaging 3.9 percent in 2018 was a 49-year low, the unemployment rate is just one factor affecting the path of inflation. An important factor holding down inflation has been international competition in the form of low import prices relative to U.S. prices. Nonpetroleum import prices have generally fallen during the past five years relative to U.S. prices.

Financial Markets

During 2018, most U.S. equity indices reached all-time highs in September before falling toward the year end; the yield curve flattened, in part due to

Figure 10-8. Consumer Price Inflation, 2012–18

Percent change (12-month)



Sources: Bureau of Economic Analysis; CEA calculations.

Note: PCE = Personal Consumption Expenditures Price Index.

asymmetric monetary policy normalization across advanced economies; and credit default spreads rose. Oil prices increased in the first half of the year, but fell substantially in the second half and ended with the December prices of Brent Crude Oil at \$57.39 per barrel, down \$6.65 from 12 months earlier. In a response to low oil prices, the Organization of the Petroleum Exporting Countries agreed in December—together with Russia—to slice production by 1.2 million barrels per day, with the cuts coming from Saudi Arabia and Russia. The perceived volatility of the financial markets—as measured by the Chicago Board Options Exchange’s Market Volatility Index (VIX), which translates prices for stock options into a measure of volatility—more than doubled from December 2017 to December 2018, though for 2018 as a whole, the VIX remained below its long-run postwar average.

Equity Markets

U.S. equity markets fluctuated during 2018, peaking around September before falling in December. From the end of 2017 through its September 2018 peak, the Standard & Poor’s 500 index rose 9.6 percent, but subsequent declines cumulated to a net loss of 6.2 percent by year-end 2018. The VIX, which uses the prices of options to uncover investors’ expectations of volatility for the S&P 500, more than doubled, from 10.3 on average in December 2017 to 25.0 on average in December 2018 (figure 10-9), to a year-end value of 25.42. This is elevated compared with an average of 17.37 during the current expansion

Figure 10-9. The CBOE's Market Volatility Index, 2018



Sources: Bloomberg; CEA calculations.

Note: CBOE = Chicago Board Options Exchange.

(VIX levels below 15 are generally considered low), but below levels observed in 2010, 2011, and 2015.

Cryptocurrencies, in particular bitcoin, experienced massive declines in 2018. The price for bitcoin reached an all-time high of nearly \$18,700 toward the end of 2017. In 2018, the price plummeted by 74.3 percent to \$3,674. Bitcoin experienced numerous blows in 2018 that caused its price to tumble. First, security concerns, regulatory challenges, and a lack of mainstream institutional adoption are key reasons why bitcoin has fallen out of favor with investors. For example, the Securities and Exchange Commission announced in December that it plans to postpone its decision on whether to approve a proposed bitcoin exchange-traded fund until next year (SEC 2018b). Bitcoin competitors—such as Ether, Litecoin, and XRP—have experienced similar declines.

Interest Rates and Credit Spreads

During 2018, short-term yields on Treasury bills and notes (those with a maturity of two years or less) mostly edged higher, following the lead of the Federal Reserve, which raised the Federal funds rate four times, for a cumulative hike of 100 basis points, during the course of the year to the 2.25–2.50 percent range. Similarly, the yield on 10-year Treasury notes increased 28 basis points, to 2.68 percent, during the 12 months of the year, with most of this increase in January

Figure 10-10. North American Investment Grade and High-Yield Credit Default Swap Spreads, 2015–18



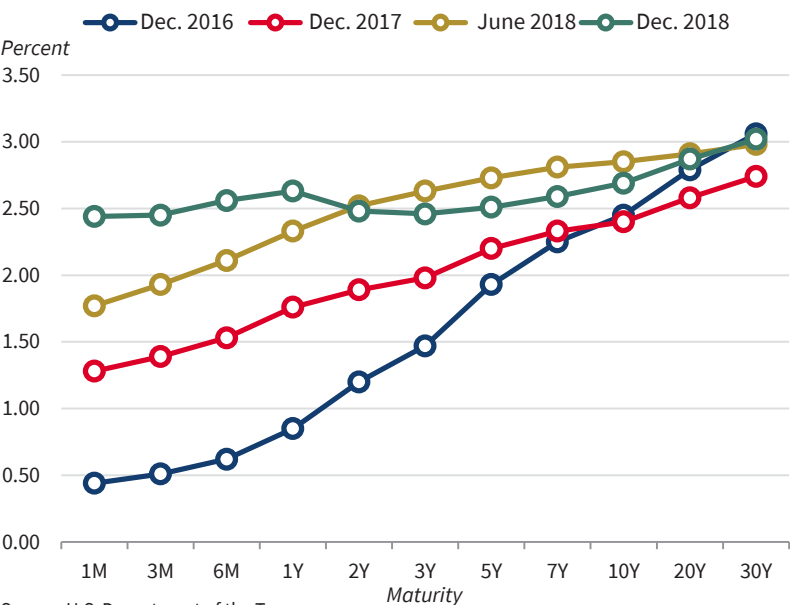
Source: Bloomberg.

and February 2018. For the first time since 2014, the 10-year yield exceeded 3 percent in October and November 2018 before falling to 2.68 percent during the last week of December.

Market participants' perceptions of bond default risk, which are gauged by credit default swap (CDS) spreads, rose sharply during the year. Credit default swaps pay their purchasers in the event of a default, and are essentially insurance policies on the bond to which they are attached. The increase in this measure of perceived risk was similar to the perceptions of equity-market risk (as indicated by the VIX, discussed above). An aggregate of North American investment-grade CDS spreads rose 38.7 basis points over the year, to their highest levels in more than two years (figure 10-10). Moreover, CDS spreads on high-yield bonds rose 142.8 basis points, also to their highest levels in more than two years.

Meanwhile, consensus forecasts of long-run U.S. interest rates remained unchanged. The long-term forecast for the 10-year Treasury yield by the Blue Chip panel of professional forecasters remained unchanged at 3.7 percent from March to October 2018. Similarly, the market-implied expectation for the 10-year Treasury yield (10 years from now) edged up, from 2.99 percent on the last trading day in December 2017 to 3.28 percent in December 2018, with most of the increase early in 2018.

Figure 10-11. U.S. Treasuries' Yield Curve, 2016-18



Source: U.S. Department of the Treasury.
Note: December dates represent the last trading day of each respective year. For maturity, M = month and Y = year.

The yield curve for U.S. Treasury notes flattened noticeably during the 12 months of 2018, as yields on short-term debt increased faster than yields on long-term debt (figure 10-11). Normally, yields on longer-term debt are higher because investors' money is locked up over a longer period and thus require more compensation. The 10-year U.S. Treasury yield ended the year at 2.69 percent, 29 basis points above its level at the end of 2017. The spread between 10-year and 2-year Treasury notes narrowed to 19.6 basis points by December 2018. The December figure is below the average of 95 basis points and is at the 19th percentile relative to the 1978-2018 historical distribution.

The yield-curve spread is considered a leading indicator, but two qualifications should be considered. First, at the 19th percentile, it is low but not extremely low. Second, Federal Reserve holdings of long-term debt remain considerable because of asset purchases during the period of quantitative easing. Third, earlier normalization of monetary policy—particularly unconventional monetary policy—in the United States relative to Europe and Japan, combined with high substitutability of advanced-economy sovereign debt, likely placed continued downward pressure on the longer end of the U.S. yield curve through the international portfolio balance channel.

The mortgage rate for 30-year fixed rate contracts was up 68 basis points during 2018, finishing at 4.60 percent. Mortgage rates generally move in parallel with the 10-year Treasury yield, which has increased by 297 basis points over

the same time frame. Toward the end of 2018, the 30-year fixed mortgage rate fell along with other interest rates.

Market measures of risk perception increased during 2018. Borrowing costs for BBB-rated companies increased faster than 10-year U.S. Treasury yields in 2018, with the BBB spread over 10-year U.S. Treasuries increasing from 60 basis points at the end of 2017 to 186 basis points at the end of December 2018, roughly matching its average postrecession spread of 185 basis points. Widening corporate credit spreads relative to Treasury notes, consistent with rising CDS spreads for corporate debt over the year, indicate that markets perceived a higher probability of corporate debt defaults at the end of 2018 than at the start of the year. With CDS and BBB spreads rising, corporate bond issuance has tapered from its robust pace in 2017; in 2018, corporate bond issuers issued \$1.4 trillion in debt, down from \$1.7 trillion in 2017.¹¹ This decline may in part have been in response to the new cap (established by the TCJA) on interest deductibility, which limits the deduction to no more than 30 percent of earnings before interest, taxes, depreciation, and amortization—commonly called EBITDA—and thereby incentivizes the substitution of equity for debt.

The Global Macroeconomic Situation

Exports are a key contributor to economic growth in the United States, nearly doubling as a share of GDP over the past three decades. As figure 10-12 shows, U.S. export growth tends to rise and fall with foreign GDP.¹² This section provides an overview of the macroeconomic situation among the United States' major trading partners. It also discusses several major ongoing global trends that affect the demand for U.S. products, including (1) the global slump in productivity growth; (2) the puzzlingly low wage growth in the advanced economies, despite strengthening labor markets; and (3) the increasing pockets of financial vulnerability across certain emerging market and developing economies.

Developments in 2018

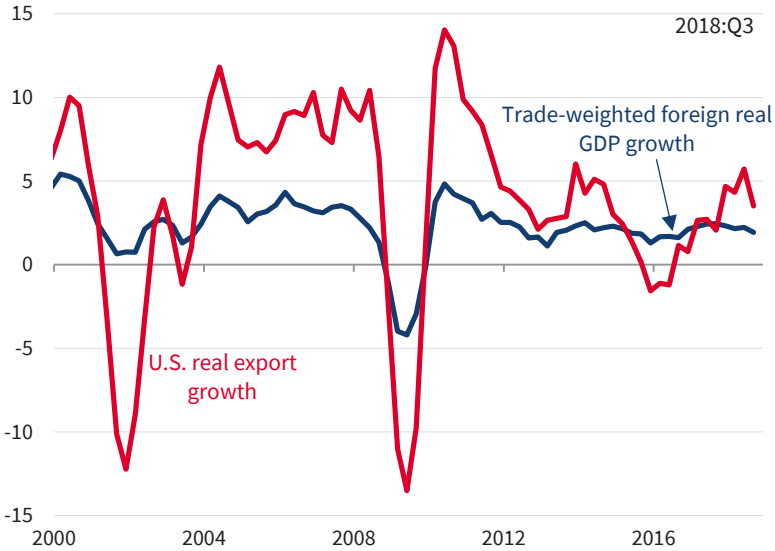
In contrast to the United States, where real GDP growth exceeded forecasts by the OECD and the International Monetary Fund, growth rates edged lower in the rest of the world in 2018, as can be seen in figure 10-12. Real GDP among major U.S. trading partners grew by 1.9 percent during the four quarters through 2018:Q3, down from 2.4 percent during the year-earlier period, but similar to the 2.0 percent average annual rate of growth during the five

¹¹ This measure was provided by the Securities Industry and Financial Markets Association, and it includes all nonconvertible corporate debt, medium-term notes, and Yankee bonds, but excludes all issues with maturities of one year or less and certificates of deposit.

¹² The CEA calculates trade-weighted global growth as a weighted average of real GDP growth for 25 foreign economies and the euro zone, using these economies' share of U.S. goods exports as weights.

Figure 10-12. Foreign Real GDP and U.S. Real Export Growth, 2000–2018

Percent change (four-quarter)



Sources: Bureau of Economic Analysis; national sources; Haver Analytics; CEA calculations.
Note: Data are through 2018:Q3, because 2018:Q4 data are not yet available for all countries.

preceding years. As estimated by the OECD and the IMF, growth slowed in 2018 in the euro area, China, Japan, and Canada (as shown in the year-over-year growth figures in table 10-2). Growth is expected to slow further in 2019, in the euro area and China.

In part, these slowdowns reflect macroeconomic policies that are becoming less accommodative, particularly through monetary policy normalization, and the continuation of headwinds from trade uncertainty and tighter financial conditions. Upside risks include the harnessing of underutilized capacity in many regions including the European periphery and the BRICS economies—Brazil, Russia, India, China, and South Africa—as well as a global reduction in barriers to trade due to the Administration’s trade negotiations. Downside risks include an elevation of global trade barriers, including as might happen from a disorderly exit of the U.K. from the European Union, additional financial market pressures in emerging market economies, persisting financial vulnerabilities from high debt levels abroad, and political uncertainty, particularly in Europe. Fortunately, inflationary pressures remain mild, particularly in light of recent declines in energy prices, and risks of higher or lower inflation appear symmetric.

Labor market conditions are still improving, with the OECD-wide unemployment rate at 5.3 percent in December, only 0.1 percentage point above the

Table 10-2. Year-over-Year Real GDP Growth for Selected Areas and Countries, 2017–19

Share of U.S. trade (2017)	Euro area			China			Japan			Canada			Mexico		
	15.9			13.5			5.4			12.9			11.8		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
IMF	2.4	1.8	1.6	6.9	6.6	6.2	1.9	0.9	1.1	3.0	2.1	1.9	2.1	2.1	2.1
OECD	2.5	1.9	1.8	6.9	6.6	6.3	1.7	0.9	1.0	3.0	2.1	2.2	2.3	2.2	2.5

Sources: Bureau of Economic Analysis; International Monetary Fund (IMF); Organization for Economic Cooperation and Development (OECD).

Note: IMF forecasts are from January 2019, and OECD forecasts are from November 2018.

series low. Business survey data also point to slower growth in the near term in both the advanced and emerging-market economies.

Real GDP growth has been weaker than expected in other advanced economies, especially in Europe, in part reflecting the disruption of production in Germany resulting from new vehicle emission standards and heightened political uncertainty, and Japan, where several natural disasters adversely affected domestic demand and airport traffic in the third quarter of 2018. GDP growth also slowed in China in the fourth quarter, reflecting ongoing deleveraging efforts and softer industrial production, as well as in India.

The euro area. During the four quarters through 2018:Q4, real GDP in the euro area grew by 1.2 percent, a substantial slowing from the 2.7 percent pace during the year-earlier period. Growth in the euro area has been driven by fixed investment, which grew at a 3.2 percent annual rate during the first three quarters of 2018 (detailed 2018:Q4 data were not available at the time of writing).

Recently, the European Central Bank (ECB 2018a) announced that it intends to wind down its monetary stimulus. This past June marked four years since the ECB became the first major central bank to cut one of its benchmark interest rates below zero, and now the ECB is ending its asset purchase program, which has increased its balance sheet by €2.5 trillion. The ECB continued purchasing assets at the rate of €30 billion a month until the end of September 2018. Then, its Governing Council reduced asset purchases to €15 billion per month through December, after which the asset purchase program ended. The ECB (2018b) also announced in December that it will sustain its record-low interest rates until at least the end of the summer of 2019. The deposit rate (for commercial bank reserves held at the central bank) remains at minus 0.40 percent; the main refinancing rate (the interest rate banks pay when borrowing money from the ECB) remains at 0.00 percent; the marginal lending facility rate remains at 0.25 percent. The ECB recently stated that its Governing Council “intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the Asset Purchase Program for an extended period

of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favorable liquidity conditions and an ample degree of monetary accommodation” (ECB 2018b).

After the phasing out of its asset purchases, the ECB will continue holding these assets on its balance sheet, which will reduce euro area interest rates and will assist euro area countries with particularly high public debt burdens to borrow at record low interest rates. That said, phasing out of new purchases implies that the ECB is gaining confidence that the recovery in the euro area will continue to be robust. Signs from Italy and Spain, however, suggest political instability and a Euroskeptic coalition in Italy could bring debt problems.

The overall CPI in the euro area rose by 1.6 percent during the 12 months of 2018, up from the 1.4 percent pace during the year-earlier period, and still below the 2.0 percent cap established by the ECB. Core CPI inflation—which excludes food, energy, alcohol, and tobacco—was 1.0 percent over the same interval, up slightly from a 0.9 percent increase during the year-earlier period.

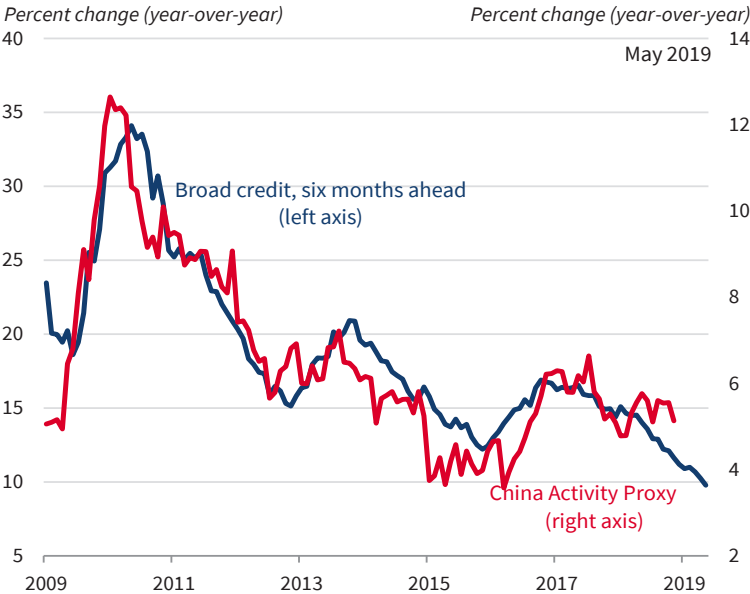
The dollar value of exports from the 19 EU member countries that use the euro has been slowing. In the 12 months through December, the dollar value of nominal exports of goods from the euro area decreased by 4.0 percent, a deceleration from the 20.6 percent increase during the year-earlier period. The dollar value of nominal imports of goods also decreased (0.2 percent in the 12 months through December), also decelerating from a 22.2 percent increase during the year-earlier.

Japan. During the four quarters through 2018:Q4, Japan’s economy was virtually stationary, with real GDP remaining essentially unchanged, down from the 2.4 percent pace during the year-earlier period, and well below the 1.1 percent average annual pace during the preceding seven years.

The long-term growth of Japan’s real GDP has been low, handicapped by an aging and declining population, making negative growth more likely. The prime-age (25–54 years) population has fallen at a 0.5 percent annual rate during the past decade. Exports have contributed to Japan’s slowdown. During the 12 months of 2018, the dollar value of nominal exports of goods from Japan decreased by 1.7 percent, down from the 15.1 percent increase during the year-earlier period.

The labor market in Japan continues to remain tight. Japan’s unemployment rate fell by 0.3 percentage point during the 12 months of 2018 to 2.4 percent in December, the lowest since 1992. Moreover, the ratio of job openings to job applicants averaged 1.61 during 2018, the highest since 1973. When this ratio exceeds 1, it indicates a tight labor market, but Japan has yet to see a sustained increase in nominal wages. Despite the low unemployment rate, consumer prices in Japan rose only 0.2 percent during the 12 months through December, down from the 1.0 percent pace one year earlier. Core inflation,

Figure 10-13. China's Broad Credit and Activity Proxy, 2009–19



Source: Capital Economics.

Note: Capital Economics' China Activity Proxy aggregates (1) tonnage of inland freight shipping; (2) electricity output; (3) floor space under construction; (4) passengers traveling by rail, road, water, and air; and (5) cargo volumes and seaports. Data for the China Activity Proxy are through November 2018.

which excludes fresh food and energy, was 0.3 percent during the 12 months of 2018, unchanged from the year-earlier increase.

Except for the effects of a consumption tax increase in 2014, Japan has experienced low or negative inflation for most of the past 25 years. These low or negative inflation rates have been a chronic problem and present several macroeconomic obstacles. Negative inflation dampens consumer spending and limits monetary policy because it is difficult for the central bank to lower interest rates much below zero. Another issue in Japan remains the country's demographics. Japan has the oldest population in the world, and it is destined to get older. In 2018, individuals age 65 and older accounted for 28.0 percent of Japan's population.

The Bank of Japan has continuously reaffirmed its decision to maintain "extremely low" interest rates, against the tide of other major central banks that are scaling back monetary stimuli. The bank confirmed a negative interest rate of -0.1 percent over the short term. The bank also stated its plans to continue purchases of 10-year Japanese Government Bonds so that yields will float at about zero percent (Bank of Japan 2018). The Bank of Japan released its Tankan survey of manufacturers in December for 2018:Q4, showing a drop of 6 points from 2017:Q4 to a still-strong 19 points, indicating that the percentage of manufacturers showing growth exceeded those that showed declines by 19 points.

Figure 10-14. Nonperforming Loans and Return on Assets for China's Commercial Banks, 2011-18

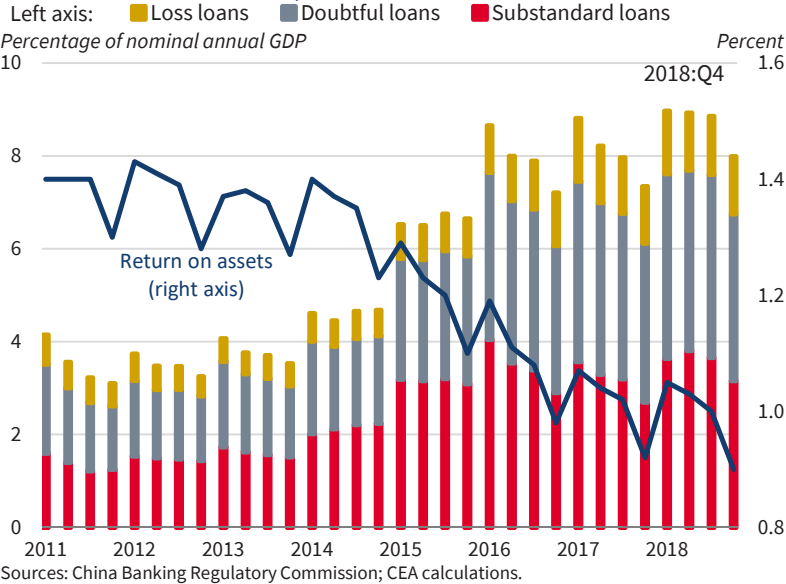
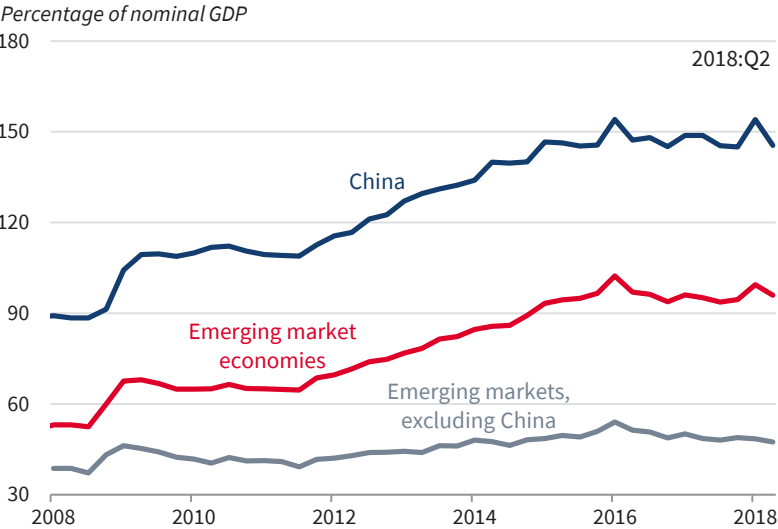


Figure 10-15. Emerging Market Credit to Nonfinancial Corporations, 2008-18



Sources: Bank for International Settlements; national sources; CEA calculations.
Note: Emerging market economies include Argentina, Brazil, Chile, China (including Hong Kong), Hungary, India, Indonesia, Malaysia, Mexico, Poland, Russia, South Africa, South Korea, Thailand, and Turkey.

China. China's official statistics show a slowdown of real GDP to 6.4 percent during the four quarters of 2018, from 6.7 percent during 2017. These official growth rates have been remarkably stable, with every four-quarter growth rate during the past five years in the interval between 6.4 and 7.6 percent. In contrast, an alternate measure of China's economic activity (Capital Economics' China Activity Proxy) shows growth during 2018 at about 5.4 percent, similar to 2017, but down noticeably from rates during the two preceding years. Broad credit growth (which generally foreshadows the China Activity Proxy by six months) has also been decreasing (figure 10-13).

As a share of nominal GDP, China's nonperforming loans have risen in each of the past six years, to an 8.7 percent average during 2018, while the return on total loans has fallen (figure 10-14). In addition, excessive credit may be restraining China's economic growth. The total credit available to nonfinancial corporations has plateaued at about 150 percent of annual GDP (figure 10-15), far in excess of that in other emerging market economies, and well in excess of the roughly 70 percent for the United States.

The Outlook

In accordance with the Employment Act of 1946, an essential component of this annual report is to set forth "current and foreseeable trends in the levels of employment, production, and purchasing power," and a program for carrying out the objective of "creating and maintaining . . . conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power." Since 1996, execution of this mandate has involved providing an 11-year economic forecast that assumes full enactment and implementation of the Administration's economic agenda.

To better distinguish the effects of legislatively contingent policy objectives from current law projections, we decompose this forecast into a current-law baseline and intermediate and top lines that reflect the estimated growth effects discussed in this *Report* and the 2018 *Economic Report of the President*. To construct our current law baseline, we treat the Tax Cuts and Jobs Act as an unanticipated shock arriving in the fourth quarter of 2017. Adapting the approach of Fernald and others (2017), we then decompose pre-2017:Q4 growth rates into trend, cyclical, and higher-frequency components using Okun's law and a partial linear regression model with a frequency filter to estimate the long-run growth rate.

We then estimate an unrestricted vector autoregressive model on detrended growth rates through 2017:Q3 of real GDP, the unemployment gap, the labor force participation rate, real personal consumption expenditures, and the yield spread of 10-year over 3-month Treasuries. We determine optimal lag length by satisfaction of the Akaike and Hannan-Quinn information

criteria. Postestimation and vector autoregressive forecasting, we then add the estimated long-run trend, plus the TCJA's estimated effects. As reported in the 2018 *Economic Report of the President*, these estimated effects reflect the economic effects of the individual and corporate tax cuts, as well as the impact on net exports of reduced profit shifting, for which we assume adjustment lags.

We then construct an intermediate forecast by adding to the current-law baseline the estimated effects of the Administration's infrastructure plan, as reported in the 2018 *Economic Report of the President*, and making the TCJA's individual provisions permanent. Finally, we construct our top-line, full, policy-inclusive forecast by adding to the intermediate forecast the effects of the Administration's labor market and deregulatory agendas, as respectively discussed in chapters 3 and 2 of this *Report*. The top-line forecast constitutes the Administration's official, "Troika" forecast by the Council of Economic Advisers, Office of Management and Budget, and Department of the Treasury.

GDP Growth during the Next Three Years

As illustrated in figure 10-16 and reported in the third column ("Real GDP") of table 10-3, the Administration anticipates economic growth to remain at or above 3.0 percent through 2023, assuming full implementation of the economic agenda detailed in this *Report* and its predecessor. We expect near-term growth to be supported by the continuing effects of the TCJA, discussed in chapter 1, as well as new measures to promote increased labor force participation and deregulatory actions, discussed in chapters 3 and 2, and an infrastructure program, discussed in chapter 4 of the 2018 *Economic Report of the President*, which we assume will commence in 2019 with observable effects on output beginning in 2020.

The Administration also expects the labor market to continue to exhibit strength in the near term, with the civilian unemployment rate remaining below 4.0 percent through 2022, as reported in the sixth column, "Unemployment rate," of table 10-3. Despite low unemployment, inflation is expected to remain low and close to the Federal Reserve's 2.0 percent target for the PCE Price Index. The Administration therefore expects inflation beyond 2018 to remain stable at 2.0 percent through 2021, as shown in the fourth column ("GDP price index") of table 10-3.

GDP Growth over the Longer Term

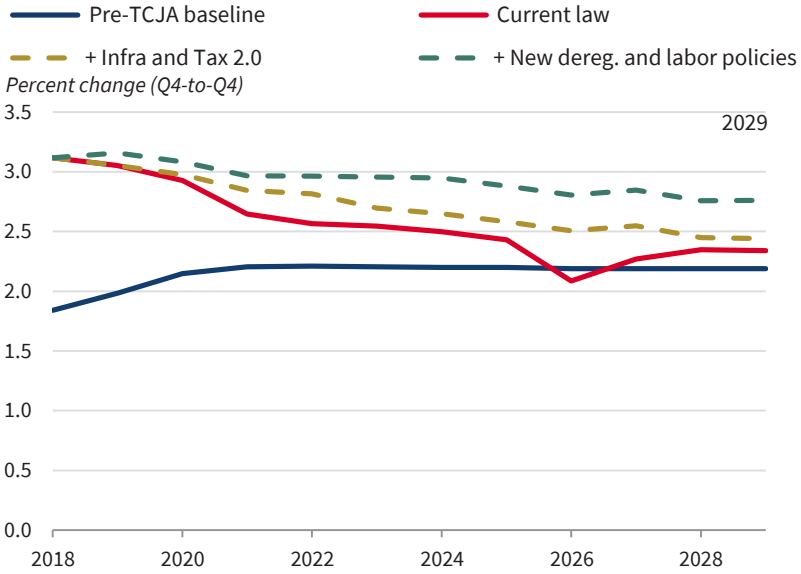
As discussed in the 2018 *Economic Report of the President* and in chapter 1 of this *Report*, over the longer term, the Administration's current-law baseline forecast is for output growth to moderate as the capital-to-output ratio asymptotically approaches a higher steady-state level in response to business tax reform, and as the near-term effects of the TCJA's individual provisions on the rate of growth dissipate into a permanent level effect. As reflected by our intermediate forecast, we expect the latter moderation to be partially offset in

Table 10-3. The Administration’s Economic Forecast, 2017–29

Year	Percent change (Q4-to-Q4)				Level (calendar year)		
	Nominal GDP	Real GDP (chain-type)	GDP price index (chain-type)	Consumer Price Index	Unemployment rate (percent)	Interest rate, 91-day Treasury bills (percent)	Interest rate, 10-year Treasury notes (percent)
2017 (actual)	4.5	2.5	2.0	2.1	4.4	0.9	2.3
2018	5.3	3.1	2.1	2.3	3.9	1.9	2.9
2019	5.3	3.2	2.0	2.2	3.6	2.7	3.4
2020	5.2	3.1	2.0	2.3	3.6	3.1	3.6
2021	5.1	3.0	2.0	2.3	3.7	3.2	3.8
2022	5.1	3.0	2.0	2.3	3.9	3.2	3.8
2023	5.1	3.0	2.0	2.3	4.0	3.1	3.7
2024	5.1	3.0	2.0	2.3	4.1	3.0	3.7
2025	5.0	2.9	2.0	2.3	4.2	3.0	3.7
2026	4.9	2.8	2.0	2.3	4.2	3.0	3.7
2027	4.9	2.8	2.0	2.3	4.2	3.0	3.7
2028	4.9	2.8	2.0	2.3	4.2	3.0	3.7
2029	4.9	2.8	2.0	2.3	4.2	3.0	3.7

Sources: Bureau of Economic Analysis; Bureau of Labor Statistics; Department of the Treasury; Office of Management and Budget; CEA calculations.
Note: This forecast was based on data available as of November 1, 2018. The interest rate on 91-day Treasury bills is measured on a secondary-market discount basis.

Figure 10-16. Forecast for Growth Rate of Real GDP, 2018-29



Sources: Bureau of Economic Analysis; Bureau of Labor Statistics; Department of the Treasury; Office of Management and Budget; CEA calculations.
Note: This forecast was based on data available as of November 1, 2018.

2026 and 2027 by making permanent the TCJA’s individual provisions, which are currently legislated to expire on December 31, 2025. Also reflected in our intermediate forecast is the effect of the Administration’s plan for raising investment in public infrastructure—estimates of which were reported in the 2018 *Economic Report*—which, as noted above, we assume commencing in 2019 with observable effects on output beginning in 2020.

The Administration’s full policy-inclusive forecast is reported as the top line of figure 10-16. In addition to successful implementation of the President’s infrastructure plan and extension of the TCJA’s individual provisions, this forecast assumes full achievement of the Administration’s agenda with respect to deregulation, as reported in chapter 2, and labor market policies designed to incentivize higher labor force participation, reported in chapter 3. Though we anticipate growth moderating toward the end of the budget window, to 2.8 percent, on average between 2018 and 2029 the policy-inclusive forecast is for output to grow at an annual rate of 3.0 percent. Relative to the current-law baseline, we estimate that full policy implementation would cumulatively raise the level of output by 4.4 percent over the budget window. Reflecting moderating growth in the latter half of the budget window, the Administration expects unemployment to converge to a natural rate of 4.2 percent, consistent with the Federal Open Market Committee’s December 2018 “Summary of Economic Projections,” which reports a range of participant estimates from 4.0 to 4.6

Table 10-4. Supply-Side Components of Actual and Potential Real Output Growth, 1953–2029

Component		Growth rate (p.p.)	
		1953:Q2– 2018:Q3	2018– 2029
1	Civilian noninstitutional population age 16+	1.4	0.9
2	Labor force participation rate	0.1	–0.2
3	Employed share of the labor force	0.0	0.0
4	Ratio of nonfarm business employment to household employment	0.0	0.0
5	Average weekly hours (nonfarm business)	–0.2	0.1
6	Output per hour (productivity, nonfarm business)	2.0	2.6
7	Ratio of real GDO to nonfarm business output	–0.3	–0.5
8	Sum: Actual real GDO ^a	3.0	3.0
Memo:			
9	Potential real GDO	3.0	3.0
10	Output per worker differential: GDO vs. nonfarm	–0.3	–0.4

^a Real GDO and real nonfarm business output are measured as the average of income- and product-side measures.
Sources: Bureau of Labor Statistics; Bureau of Economic Analysis; Department of the Treasury; Office of Management and Budget; CEA calculations.
Note: GDO = gross domestic output, which is the average of GDP and gross domestic income. All contributions are in percentage points (p.p.) at an annual rate, with the forecast finalized to November 1, 2018. The total may not add up, due to rounding. The period 1953:Q2 was a business cycle peak; 2018:Q3 is the latest quarter with available data. Population, labor force, and household employment have been adjusted for discontinuities in the population series.

percent, with a median estimate of 4.4 percent (Federal Reserve 2018a). The unemployment rate rising to 4.2 percent is also expected to maintain a rate of inflation at 2.0 percent, as measured by the GDP chained price index (see the fourth column of table 10-3).

As shown in table 10-4, the Administration anticipates that the primary contributor to increased growth through 2029 will be higher output per hour worked. As discussed in chapter 1, despite a modest rise in 2017, U.S. labor productivity growth was disappointing in recent years before the TCJA, owing to a lack of capital deepening. By substantially raising the target capital stock and attracting increased net capital inflows, including investment both by foreign firms and overseas affiliates of U.S. multinational enterprises, we expect enactment of business tax reform to considerably increase capital per worker, and thus labor productivity. Already during the first three quarters of 2018, labor productivity growth in the business sector doubled relative to its pre-TCJA, postrecession average—from 1.0 to 2.0 percent at a compound annual rate. Labor productivity growth in the nonfarm business sector similarly rose, from

a 2009:Q3–2017:Q4 average of 1.1 percent to 1.8 percent at a compound annual rate during the first three quarters of 2018. If fully implemented, we also expect the labor market policies articulated in chapters 3 and 9 to partially offset the effects of demographic-related trends in labor force participation, as reflected in line 2 of table 10-4.

Upside and Downside Forecast Risks

As noted in the 2018 *Economic Report of the President*, upside risks to the forecast include higher net capital inflows due to international capital mobility exceeding estimates, which would attenuate the potential crowding out of private fixed investment in response to business tax reform and public infrastructure investment. Second, academic studies demonstrating that individual marginal income tax rates may have differential effects across the age distribution suggest that estimated trends in labor force participation may overstate the growth-detracting effect of demography. Third, insofar as growth estimates presented in this *Report* and its predecessor have been derived from standard neoclassical growth models, they may omit the positive externalities and spillover effects captured by endogenous growth models such as that of Ehrlich, Li, and Liu (2017). Tax reform that incentivizes investment in human capital, regulatory reform that eliminates prohibitive barriers to entry for more innovative and entrepreneurial firms, and health investments and labor market policies that facilitate human capital accumulation may, therefore, yield higher growth dividends than are estimated here.

Because the Administration’s forecast is policy-inclusive, a key downside risk is the political contingency of full implementation of the President’s economic agenda, particularly in light of the inherent unpredictability of the legislative process. In addition, by definition the policy-inclusive forecast assumes that the Administration’s policies will be implemented and remain in place throughout the forecast window. In scenarios where future administrations or Congress partially or fully reverse the TCJA, or otherwise raise taxes, or significantly expand the Federal regulatory state, economic growth would be lower or even negative. Chapter 8 of this *Report*, for example, calculates that the “Medicare for All” bills currently in Congress would reduce real GDP by about 9 percent in the long run if financed by taxes on labor income.

In addition, recent proposals to introduce a top marginal income tax rate of 70 percent on personal income over \$10 million would, if enacted, result in lower output and Federal government tax revenue. Using open source software available from the Open Source Policy Center, the CEA estimates that though such a proposal would generate, on a static basis, \$210 billion over 10 years, dynamic estimates indicate a net revenue loss. Specifically, assuming an income elasticity of taxable income of -0.135 and a substitution elasticity of taxable income of 0.43 (from Gruber and Saez 2002), and an elasticity of long-term capital gains of -0.79 (from Dowd, McClelland, and Muthitacharoen 2012),

the cumulative 10-year change in personal income tax revenue is -\$54 billion. Including the effect on payroll tax revenue, the combined cumulative effect is -\$66 billion. Assuming an elasticity of GDP with respect to 1 minus the average marginal tax rate of 0.36 (from Barro and Redlick 2011), GDP would decline by 0.2 percent in year one. Because this decline constitutes a permanent level effect, cumulatively over 10 years, nominal economic output would be \$531 billion smaller, relative to the CBO's January 2019 10-year GDP projections.

Cyberattacks and cyber thefts constitute additional downside risks that we have attempted to quantify in chapter 7 of this *Report*. A slowing global economy—as projected by the IMF (2019) and OECD (2018)—also poses a near-term downside risk, as more synchronized growth observed in 2017 was succeeded by evident decoupling in 2018. In particular, the deceleration of economic activity and sentiment in China and parts of Europe, along with high public debt levels in several advanced and emerging economies and high corporate debt levels in the United States, may generate economic headwinds.

Conclusion

For the second consecutive year, the U.S. economy outperformed expectations by a substantial margin. In October 2017, the Congressional Budget Office projected that during the four quarters of 2018, real GDP would grow by 2.0 percent, the unemployment rate would decline by 0.1 percentage point to 4.2 percent, and employment growth would average 107,000 jobs per month. In actuality, real GDP grew by 3.2 percent at a compound annual rate through 2018:Q3—virtually in line with the Administration's own forecast for an unprecedented second successive year—the unemployment rate declined by 0.3 percentage point from 2017:Q4 to a 49-year low of 3.8 percent in 2018:Q4, and employment growth averaged 223,000 jobs per month during 2018.

As the chapters that constitute this *Report* demonstrate, 2017 and 2018 were not merely continuations of trends already under way during the postrecession expansion, but rather constituted a distinct break from the previous pace of economic and employment growth after the start of the current expansion in 2009:Q3. In particular, the effects on business expansion and domestic capital formation of deregulatory actions and business tax reform have been substantial. In addition, labor market policies and reductions in effective marginal personal income tax rates have helped to attenuate previous downward trends in labor force participation. Looking ahead, this *Report* recommends further implementation of policies to expand the supply-side potential of the U.S. economy to sustain growth in the years to come.